





SOME ACCOUNT  
OF THE  
EPIDEMIC FEVER

WHICH PREVAILED IN LIVERPOOL,

IN  
THE LATTER MONTHS OF THE YEAR 1844.

BY  
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# THE UNIVERSITY OF CHICAGO

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# SOME ACCOUNT OF THE EPIDEMIC FEVER IN LIVERPOOL,

IN THE LATTER MONTHS OF THE YEAR 1844.

THE subject of the late febrile epidemic which has visited this town and neighbourhood, has excited much attention and discussion amongst the medical practitioners of the locality, and particularly in those districts where its chief visitation was experienced. The cause, nature, and extent of its somewhat remarkable visit, have appeared to me deserving of investigation, whereby, if possible, a sufficient array of facts might be obtained, and something like a correct estimate of its natural history could be deduced.

The subjects of inquiry have resolved themselves under the several heads of—

1. The usual features of the fever.
2. Its essential characters.
3. Its contra-distinction from ordinary continued fever, and from typhus.
4. The complications.
5. The period of crisis, if any.
6. The rate of mortality.
7. The *post-mortem* appearances.
8. The treatment.
9. The district invaded.
10. The cause or causes,—if traceable to topographical position.
11. To meteorological changes.
12. The epidemic constitution and prophylaxis.

In the course of reviewing the various phenomena presented in groups of febrile disturbances which have extended, within certain limits of range, over a population in general the least subject to ordinary fevers, I have proposed to myself the plan of introducing, in the first place, a general sketch of the epidemic, and then noticing the various peculiarities remarked by different observers, under the review of each of the foregoing heads. By so doing, the tabulated results can be better compared with each other, because exhibited in their dependent, rather than in an isolated and abstract form; and their several relations to each other, and to the whole class of phenomena, can be shown. The reader will thus be spared the weariness of consulting or collating tables for himself, whilst the accuracy of statistical investigation can be preserved, so far as the method of enumeration can realize a practical end. It may be desirable to mention, that every statement brought forward in this manner has been weighed by others as well as myself, and has the stamp of ascertained fact for its recommendation.

## I. *What were the usual features of this epidemic?*—

The earliest impression of the morbid agency was, as usual in other febrile movements, marked by (*a*) rigor, or shivering, accompanied with pallor of the surface, indicating the first disturbance of the balance of the vital fluids, by the repulsion of blood towards the internal organs. This stage varied in its duration in different cases; it was, however, seldom absent or indistinct, except in the very mildest cases, which indeed could hardly be termed cases of fever; more commonly it was prolonged beyond the corresponding stage of common continued fever, the vascular system appearing much oppressed, and as if deprived of the power of complete re-action. In some few instances, this stage of fever,—the stage of first collapse,—was never followed by any re-action; and it may then be said to have continued into death itself, like the first impression of genuine typhus. Such instances occurred as well in the fever-wards as in private practice.

When the symptoms of collapse—small weak pulse, prolonged rigor, pallor of skin, and reduction of animal heat, especially of the surface and at the extremities, &c.,—continued to a fatal termination, it is evident that the type was of a highly congestive character. These rapid cases, lasting from a few hours to two, three, or four days, must be included under the class, “extreme congestive fever,” of Dr. Armstrong; as for reasons to be hereafter shown, they can not be admitted into the category of true typhus.

Where the symptoms of the first stage were of a milder kind, and the repulsion of the blood was not so strong in directing the circulating current back upon the heart, there was then a correspondingly mitigated stage of (*b*) re-action, wherein the pulse, in the generality of cases, would rise but little, so as to strike the observer with some surprise at the slight variation from the natural standard. It would be small and compressible, or else jerking, indicative of the effort of the heart to relieve itself of the accumulated stimulus thrown upon it by the determination to the internal organs.

(*c*.) Muscular prostration was very general, and sometimes the pain of the limbs was remarkable.

(*d*.) The sensibility of the whole surface of the body was generally depressed, although there were several instances in which, in some particular regions, it was to a remarkable pitch, preternaturally exalted along



with the gradual establishment of re-action; and this would generally continue, with but slight mitigation, throughout the whole course up to convalescence. These regions have been most commonly about the head, especially towards the back part, and then passing down the back and sides of the neck; next in order came the shoulders and arms; and, lastly, the thighs and legs.

(e.) Tenderness of the epigastrium, extending round to the right hypochondrium, was, perhaps, the most prevalent symptom of topical embarrassment, and next, of the right iliac region, corresponding in some cases to the ileo-colic valve.

(f.) Fur of the tongue, either white or cream-coloured, and moist, or of a slaty brown, with varying intensity of shade and tint on to redness, more particularly of the tip and edges, or cracked and glazed; sometimes with a dry centre, and thick coat of brown fur; at other times, clean and pointed. It would be difficult to fix upon the most general condition of this organ, although more positive characters might be looked for. One marked feature was (g) a tremor, or tremulousness, very commonly observed, when the tongue would appear hardly capable of self-sustentation, and therefore showed itself as resting upon the teeth. This condition of the tongue seems to me very characteristic of the early impression of the sedative agency of the malarious poison, as, from its delicate balance of muscular arrangement, the tongue becomes, perhaps, the quickest indicator of any disturbance of the nervous system. This is exemplified in the physiology of drunkenness. In the prostrated muscular power of the tongue, we find a correspondence with the general muscular prostration, as well as with (h) mental anxiety, or hurry; and it is of practical interest to predicate of these two systems—the muscular and cerebral—a general corresponding condition to that of this delicate physiological or anatomical balance, the tongue. The mental disturbance, in some few cases, went to the length of annihilation of mental manifestation—a state described also technically by the term “lassitude.”

(i.) Restlessness was a leading characteristic of the epidemic, even in those cases where the presence of low delirium was not superadded. This mild form of sensorial disturbance was noticed by all, and not unfrequently resisted for a long time the effects of opiates of various forms administered for procuring rest; the mild sedative form, now called hypnotics, were generally useless. This restlessness was one of the symptoms the most annoying to the patient, though perhaps the least indicative of danger; and not only did this phase of morbid agency associate itself commonly with the other symptoms of febrile disturbance, but it was also present to a very general, I had almost said universal, extent, even when dissociated from other morbid actions, in the personal experience of the healthy inhabitants of the invaded districts, which, along with pains in the limbs, &c., was an unpleasant impress of the “epidemic constitution.” To this feature I shall return when discussing the subject of prophylaxis.

(j.) Mild delirium was very common; it did sometimes assume a more severe form, but was then, I believe, always connected with some cerebral complication. Generally the delirious excitement was described by all observers in the same terms—“low delirium,”

muttering, or moaning, or slight forms of hallucination. It was possible, too, usually to rouse the patients out of this state back to consciousness, by putting a question energetically, or suddenly drawing their attention, after which they would relapse into their habitual semi-consciousness.

(k.) The pupil was often observed to be dilated.

(l.) The countenance in several cases, perhaps more generally in women, had a peculiar waxy look, which contrasted with the flush on the cheek-bone, and gave a singular turn to the features: this was, perhaps, more noticeable in the fever-wards than in private practice. My friend, Dr. Dickinson, first directed my attention to this symptom when going round the wards with him, where this waxen face and flush could be contrasted with the patient labouring under genuine typhus in the adjoining bed. Whilst the countenances of both subjects had the indescribable print of “fever” stamped upon them, the peculiarity alluded to was superadded, and so expressive, that by this character, at first glance, it was easy to select out from the typhoid and common continued forms, this nervous form of fever.

(m.) Deafness occurred occasionally, in the extreme congestive form; scarcely in the milder form.

(n.) Cough was also present, and considered by some practitioners so usual a symptom as to characterize the epidemic. It was undoubtedly a frequent symptom, and so was complication of the thoracic viscera, as I shall afterwards show. The cough must be ascribed therefore to this complication, and not as belonging essentially to the epidemic, however frequent it might be, because in a certain number of pure cases there was none.

(o.) The bowels were frequently subject to a diarrhoea, though not usually of a very intractable form. Constipation on the contrary, would prevail in another set of cases; whilst, again, in others there would be but trifling deviation from the usual state of the patient’s habit. The variation in this respect, as well as in several others, would, there is no doubt, be caused by the different sanitary condition of different localities or wards of the town.\*

(p.) The urine did not appear to vary particularly.

Of the “extreme congestive form,” a few cases have been met with both in private practice and in the fever-wards, but I have no data as to the number of such cases. It is reasonable to infer, that judicious and prompt treatment has recovered the patient, in several instances, thus staggered under the stroke of the malaria, and planted him in the second stage, where the resources of the natural powers are better able to contend with the diffused effects of the poison. In the records of the fever-wards, I find that during the epidemic period, a very few cases were brought in, with such prostration of the vital energies, that they could not be rallied by any resources of art.

Where the re-action was fully established, and at an early stage, the symptoms would frequently run a mild course; and if the constitutional powers were economised in the course of the treatment, so as neither to cripple their spontaneous efforts at restoring the balance, nor to fail in rendering essential aid where

\* It is almost superfluous for me to refer to Dr. Duncan’s very able pamphlet on the *Health of the Town of Liverpool*.



pointed out by the indication of symptoms, then a gradual rallying into convalescence occurred, with or without observed crisis; and it sufficed to solicit gently the regular action of the bowels, to exhibit some light and suitable tonic, and, perhaps, an occasional calmant for the nervous system. Some cases which set in rather formidably in the first stage, would thus come round very favourably through the second, and present for the last stage a convalescence which eventuated in restored health, though not at its former vigour. In this respect the epidemic was possessed of a feature characterising the epidemic catarrh, or "influenza;" and not only in this point had it a resemblance to the latter, but the complication of catarrhal symptoms was so often present in certain localities, that many of the practitioners called to such felt disposed to consider it a modified influenza. It deviated, however, in one important respect from this latter affection, in that it showed itself in the close of the autumnal quarter, and just declined as the period for the usual catarrhal epidemic came on.

Whilst referring to this subject, I may be allowed to venture one general observation, which will, I trust, if borne out by the more experienced judgment of others, prove in some points of practical value, as containing a proposition to be held in remembrance in the treatment of such affections in future,—*that there is a tendency in modern epidemics to assume a common character of nervous depression, more especially in densely populated districts, but by no means limited to such; wherein a routine practice of what is called "antiphlogistic treatment," without decided and particular demand for such by urgent symptoms, is decidedly erroneous, as weakening the vital powers, and thereby prejudicing the attempts at a spontaneous crisis, and retarding convalescence.*

Whether such change of character of many diseases is traceable to the altered social manners of life and the enervating habits of many, inducing a less robust state of the body, and which either as a weakness of the bodily frame generally, or a diseased predisposition, is capable of transmission from parent to offspring; or whether due to the densely populous towns now rising up around us to an extent, in many rural districts, far exceeding the former metropolitan populations; or that there are cycles of disease uniform with the periodic revolutions of other observed phenomena in the natural world, it would be foreign to the purpose of this paper to enter into. It is, however, an inviting subject of speculation for the inquiring mind, and a legitimate subject of reflection and research both for the philosophical physician and the philanthropist.

To return:—Where the latent stage, as it is called, has been unusually prolonged, whether from the weak constitution of the patient, or from its occurrence within the focus of the epidemic invasion, there, as in other fevers, the associated phenomena of the stage of re-action were marked by characters of doubtful import, as if some uncertain seizure of some one or other important organ were threatening to take place; and there can be no question that the intensity or prolongation of the congestive stage predisposed, throughout the indeterminate course of the second stage, some or other weak organ of the body to mischievous arrest of its circulation, if not to all the conditions of a more

or less sthenic inflammation. These were precisely the instances where the alertness and sagacity of the practitioner were largely called upon to anticipate the earliest symptoms of what might prove a dangerous complication. His skill and experience were exercised to divine what would constitute the weakest and most assailable point for an insidious attack; and in such cases, especially, a knowledge of the former health and habits of the party, could alone enable him to meet rising symptoms of an unfavourable character, and to direct with most effect the resources of his art. Where so much was found to depend upon a knowledge of the previously healthy or disordered state of the vital and other important organs, how could the absence of such needful data be adequately supplied? for even when aided by them, the well-educated and pains-taking medical attendant would find the daily interrogating of the chief visceræ cavities, hardly sufficient to detect the quick and deceitful deviations from normal integrity of function or organization. The difficulties and dangers arising from the implication of important organs in the course of fever, are familiar to all, whether occurring primarily in a previously sound viscus, or secondarily, in a part already crippled or debilitated by general or local disease. It suffices, then, simply, in this general sketch to remark, that the usual difficulties springing from the above-named source were felt by all; that though symptom-treating in fever has been as productive of good, and is therefore as sound an empirical practice, (using the word empirical in its philosophical and strict sense), as ever practice upon hypothesis, or theory has been, yet it was incumbent to remember, that a single symptom taken as a guide would frequently prove fallacious; and, again, that where a group of symptoms were to be weighed, a solitary monition in the presence of a single symptom of importance could not be overlooked with impunity. So nicely was the balance of discrimination hung in many cases, that, after all, the "tactus et visus eruditus" found it no easy task to thread the maze.

The value of the rate, volume, &c., of the pulse, as a general index of the state of the system, was much lessened, as often in the cases of this epidemic, the pulse seemed to deviate comparatively little from the natural standard in many important characters? If the risk of implication of sundry organs were to be calculated by the state of the pulse alone, how was the mischief to be early detected when serious complications stole on, and the pulse would only indicate the mischief when its extent had gone very far. Yet such was the case in many instances. If again, the indications of the tongue were relied on, and from its comparatively natural state, presenting inconsiderable deviation, especially at the earliest periods, a feeling of security were indulged in by the medical observer, and a favourable prognosis too sanguinely drawn, what would be his surprise to discover that he had been too hopeful as to the mildness of the case? or, if the state of both pulse and tongue were estimated as favourable, and convalescence attained, his regret should be called forth at finding a proneness to relapse, and the patient become again feverish and restless, whilst he could not accuse indiscretion in diet or regimen, as in other cases of more regular fever; or, again, if he relied upon uniform progression of symptoms, as in a case of typhus or continued



fever, and he found a mitigation of symptoms and cherished a hope of approaching convalescence, at the ensuing visit of a few hours interval he should find an exacerbation of them all, and be obliged to resume at this, at whatever risk of credit for consistency of character, some treatment, the suspension of which he had ordered at the last visit. Such and other annoying features were inscribed upon the past epidemic, and the practitioner had unusual demands made upon his resolution, by the occurrence of all the possible phases of the febrile type, with mutability and irregularity. Fallacies, the pushing of rules too rigorously, and a tendency to relapse during apparently promising convalescence, along with the insidious features of congestive complications and nervous anomalies, were the stumbling blocks against which he might often stake at once his patient's chance of restoration and his own reputation.

II. *What are the Essential Symptoms?*—This question has been already answered in detail, but for the sake of precision, we may enumerate the following symptoms of well-marked congestion of some or all of the great splanchnic cavities:—

- (a.) Invasion of rigor, or shiverings.
- (b.) Feeble, small, compressible pulse.
- (c.) Reduced temperature of body, especially of the skin.
- (d.) Muscular prostration.
- (e.) Mental anxiety, lassitude, or annihilation of cerebral energy.
- (f.) Diminished sensibility, progressing on to more or less simple re-action in the fibrils of the cutaneous nerves, accompanied with muscular pains in the head, especially the occiput, neck, shoulder, arms, and less commonly, also, the lower limbs.

This state of the febrile movement evidently belongs to that type which, in Dr. Armstrong's nomenclature, is denominated very characteristically, "the mild congestive form."

Where, as in some instances, the morbid impression has been so profound, and the vital force of the system so feeble, as to preclude the possibility of the occurrence of re-action, then the attack, which may be termed a fatal concussion of the nervous and circulating powers, is manifestly the kind termed in the same nomenclature, "extreme congestive fever."

III. *Is this Fever distinguishable from Common Continued and from Typhus Fever? and if so, by what set of contra-distinct Symptoms?*—It has proved no easy task to make out, with accuracy, generally prevalent characters, which might satisfactorily mark the distinction. Whilst this is a general fact, yet it has occurred to me, and to others, to remark, in several cases, a variety, or specific difference, which has not failed to verify itself to the attentive observer, rather in the shape of modifying characters impressed on the several stages of the phenomena, taking the whole range from invasion to termination, and where it might have been difficult to distinguish symptoms of the fever; yet no one could doubt the fact of the general type of this disorder, being, if not essentially, yet remarkably, different from either of these other familiar types. The statistical summary will further bear witness to this variation, although it may not indicate all the particulars.

IV. *What Modifications or Forms are found under*

*the Generic Type?*—This question may be categorically answered by the assertion—according to my own experience, and that of one or two other practitioners whose experience abroad renders them fit observers—that the modifications of intermission and of remission were present, although, perhaps, not common. It seemed to us, that periodicity of attack was most observable in the persons of young children, and the accuracy of the observation is the more likely to be well founded, as several children passed under my notice when giving attendance at the out-door department of the Lying-in-Hospital and Dispensary for Diseases of Women and Children. The brief statistics of these cases will come in better after the general statistics of our subject.\*

Before leaving this query, I may observe that the answer to it also forms an additional answer in reference to one particular of the preceding question. The fever may have presented to different observers very various or different phases, so as, at first sight, to seem to imply some discrepancy which might discredit the accuracy or tact of those who are found reporting exceptions to the general rule. It is scarcely necessary for me to remark, that this judgment would instance, in all probability, a false and ignorant criticism, because fever has been found to vary in character considerably, both at successive stages and in different localities, so as to present a mutability of type, especially in a large town.†

I have already remarked, in the general sketch, that epigastric tenderness was noted; and this was the initiative localization of the morbid influence. With such, or any other, first link in the chain of complicated derangement, it will be expected that the usual series should follow in the natural order of sequence, or as concomitant disturbances; and such was the fact. Weakness of organs, or symmetrical organism,

\* If it be not superfluous, I might refer to authorities in support of these views, although the number of instances may not have been striking:—"Some writers, and more particularly *Hildenbrand*, consider that, as in remittents, wherein a new invasion supervenes before the previous paroxysm had subsided, so in continued fevers, one fit runs into another." "Continuæ ergo febres, si non omnes, saltem pleræque præsertim criticæ à plurimis paroxysmis febrilibus, quorum unus alterum subintrat compositæ sunt"—*Copland's Dictionary of Practical Medicine*; Article Fever, p. 896.  
\* \* \* The term "subintrant" is thus described further on by him:—"When the fits of a quotidian, or of a double tertian, or of a triple tertian, approach each other so closely that the one is hardly finished before the next commences, the fever has been called 'sub-intrans,' or 'sub-intransant;' and differs but little from a remittent type, excepting that the cold and sweating stages may be somewhat more marked in the former."—*Ibid*, p. 936.

† "Hence we cannot be surprised to find fever *mutable* in many of its characteristic phenomena, to observe one species or variety closely approximate others, and even to meet with instances of one type, or form, suddenly or unexpectedly changing into another, in some period of its progress. Thus it is not unusual to see a simple tertian change to a quotidian or double tertian, or an intermittent pass into a remittent, or this latter into a continued form. Occasionally, the disease alters from mild to severe, or from nervous to malignant. It sometimes is simple through a great part of its course, without any one organ suffering a predominating disturbance, and yet it suddenly becomes very dangerously complicated, and thereby assumes very different features."—*Copland's Dictionary of Practical Medicine*, p. 897.



idiosyncrasy, or hereditary predisposition, would, in some instances, determine the focus of the disturbed nutrition, or other lesion of natural function. The amount of correspondence to ordinary complications in this disorder, or the range of difference, will be given in a more digested form hereafter.

ANALYSIS OF ONE HUNDRED AND SIXTY-NINE CASES OF FEVER,

Admitted into the Fever Wards, from September 1st, to December 31st, under the care of Dr. Dickinson and Dr. Gouthwaite.

	Dr. Dickinson.	Dr. Gouthwaite.
Essential or simple form	69	10
Complicated ditto	55	35
Total	124	45=169

DR. DICKINSON'S CASES.

SEX		
Males, 59	Females, 65	Total. 124

AGE.			
	Females.	Males.	Total.
Up to 10 Yrs. inclusive	8	2	10
From 10 to 20	20	18	38
20 to 30	24	21	45
30 to 40	9	10	19
40 to 60	2	6	8
At 62	0	1	1
Undetermined	2	1	3
	65	59	124

DURATION.

One week	18	Six weeks	7
Two weeks	29	Seven weeks	1
Three weeks	34	Eight weeks	1
Four weeks	16	Nine weeks	1
Five weeks	16	Ten weeks	1

Recovered, 117 ;—Died, 7 ; or 5.6 per cent.

STATE OF PULSE.

Maximum	70	5
Ditto	80	12
Ditto	95	30
Ditto	110	53
Ditto	130	3
Ditto	160	1
Not recorded		20

Maximum mean	} average of 104 cases 101.3
Minimum mean	
	} average of 7 cases 88.5

STATE OF THE SKIN.

Hot	4
Maculated	6
Petechial	2
Moist	3
Hot and moist	6
Hot and dry*	50
Unobserved	53

(\*1 Yellowish)

STATE OF TONGUE.

Creamy	17
Yellowish or white fur	25
Florid edge and tip	6
Glazed centre	5
Furred and dry	40
Glazed red	1
Brown fur	8
Black fur	5
Unnoticed	17

SINGLE COMPLICATIONS.

NERVOUS SYSTEM.

Low delirium	8
Furious delirium	1
Nervous excitability	2
Coma	1
Dilated pupil	2
Hiccup (for days)	1
Anxious face	1

(Watchfulness general.)

RESPIRATORY SYSTEM.

Bronchitis	7
Sore-throat	2
Pneumonia (left lung)	1
Pneumonia (right lung)	3
Laryngitis	1

DIGESTIVE SYSTEM.

Abdominal tenderness	34
Diarrhœa*	4
Tympanitis	3

(\* With black stools in three cases.)

CIRCULATING SYSTEM.

Phlebitis (of the saphenic vein in five cases.) 6

DOUBLE AND TRIPLE COMPLICATIONS.

Respiratory and digestive	2
Digestive and nervous (1 true typhus)	6
Ditto and skin (scarlatinous)	1
Ditto, respiratory and nervous	4
Nervous and generative (menorrhagia)	1

(Relapses 5 ;—on the 14th day, 1 ; on the 16th day, 1 ; lasted 7 days, 1 ; on the 16th day, erysipelas, which lasted 20 days, 1.)

DR. GOUTHWAITE'S CASES.

SEX.

Male, 1	Females, 44	Total. .. 45
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AGE.

Up to 10 Years inclusive	2
From 10 to 20	18
20 to 30	16
30 to 40	4
At 45	1
Unascertained	4

DURATION.

One week	6	Five weeks	2
Two weeks	16	Six weeks	1
Three weeks	12	Undetermined	3
Four weeks	5		

RESULT.

Recovered, 37 ;—Died 8 ; or 17.75 per cent.



## STATE OF PULSE.

Maximum in 41 cases, from 80 to 150; in 23 cases, pulse at 120; mean pulse in 41 cases was 114.75. In one instance out of 45, pulse too rapid; in another, too small and weak, to be counted.

## STATE OF SKIN.

Hot and dry (very hot, 1; red, 1; yellow, 2)	26
Hot and moist . . . . .	2
Cool and moist . . . . .	2
Cool . . . . .	7
Moist . . . . .	2
Unnoticed . . . . .	6

(1 with measly eruption.)

## STATE OF TONGUE.

Furred, red edges . . . . .	8
Ditto, dry . . . . .	9
Ditto, dry and white . . . . .	2
Ditto, dry and brown . . . . .	3
Ditto and moist . . . . .	9
Furred . . . . .	6
Moist . . . . .	1
Clean and dry . . . . .	1
With sordes . . . . .	2
Unnoticed (in particular) . . . . .	4
—45	

## SINGLE COMPLICATIONS.

## NERVOUS SYSTEM.

Low delirium . . . . .	8
Stupor . . . . .	1
Subsultus . . . . .	1
Pervigilium . . . . .	1
Dilated pupil . . . . .	2
Skin, highly sensitive . . . . .	1

## RESPIRATORY SYSTEM.

Sore-throat . . . . .	5
Cough, (with expectoration, 2; rhonchus, 1;) . . . . .	5
Pneumonia (double) . . . . .	1

## DIGESTIVE SYSTEM.

Vomiting . . . . .	2
Abdominal tenderness . . . . .	19
Black stools . . . . .	2
Inordinate digestion . . . . .	1
Constipation . . . . .	1

## DOUBLE COMPLICATIONS.

Respiratory and Digestive (double Pneumonia in one case) . . . . .	2
Ditto and Nervous . . . . .	1
Digestive and Nervous (dilated pupil; tender epigastrium in one case) . . . . .	7
Digestive, Nervous, and Respiratory . . . . .	1
Nervous and Skin—(measly eruption) . . . . .	1
—— (erysipelatous eruption) . . . . .	1

Relapsed 2:—on the 14th day, 1; on the 19th day, 1, which proved fatal from erysipelas.

LIVERPOOL LYING-IN HOSPITAL AND DISPENSARY  
FOR DISEASES OF WOMEN AND CHILDREN.

## Table of Cases.

From September 10th, to December 6th, 1844.

SEX.		Total.	
Females, 24	Males, 15	39	
<i>Date of Application at Dispensary</i>	<i>No. of Cases.</i>	<i>Date of Application at Dispensary.</i>	<i>No. of Cases.</i>
Sept. 10	1	Nov. 1	2
„ 27	2	„ 4	1
„ 29	1	„ 6	1
Oct. 2	1	„ 12	1
„ 3	1	„ 14	1
„ 5	1	„ 15	2
„ 6	1	„ 17	1
„ 7	1	„ 19	3
„ 8	1	„ 22	2
„ 9	1	„ 27	3
„ 11	1	„ 29	2
„ 13	1	„ 30	1
„ 25	1	Dec. 3	1
„ 26	1	„ 4	1
„ 27	1	„ 6	1

## AGES OF FEMALES.

9 months . . . . .	1
1 year, 3 months . . . . .	2
1 year, 6 months . . . . .	3
2 years . . . . .	2
2 years, 6 months . . . . .	1
3 years . . . . .	2
3 years, 6 months . . . . .	1
4 years . . . . .	3
4 years, 6 months . . . . .	2
5 years . . . . .	1
6 years . . . . .	1
7 years . . . . .	1
13 years . . . . .	2
22 years . . . . .	2

24

Total number of Males . . . . . 15

—39

The highest age of Males was 8 years.

In the corresponding period for 1843, (September to January,) only seven cases of fever were reported in our books, and in one of these the patient was fifty-six years of age, and of course a female. I do not mean to assume that every case was due to the epidemic, because a certain amount of infantile remittent is always prevailing; but the question is, in my mind, far from uninteresting, as to how far it is likely the continued form of epidemic fever in adults may be apt to convert its type into the intermittent or remittent form in childhood. I throw out this remark as a suggestion, with all deference to the larger experience of others; yet I think, that the instances which passed under our review exhibited more of the intermittent form, in proportion to their years, than was observed among adults. We even denominated it the epidemic intermittent or remittent, or take it that we could possibly have been so far in error as to have mistaken the well-known remittent form of childhood's fever, there was an unusual amount of it present, compared with the corresponding periods before and after, and this amounts to pretty much the same thing.



# DETAILS AND SUMMARY OF PRIVATE CASES.

To Mr. Chalmers, of Everton, I am indebted for the following particulars:—

Date of first case, 27th of October, 1844.

Date of last case, 10th of February, 1845.

Mild .... 30 Severe .... 32 ..... Total 63.

Age—From 3 years to 70 years.

Sex—Males, 21; Females 42.

Simple or essential—(at least presenting but slight abdominal tendency,) 25.

Complications—Cerebral and abdominal, mostly; cerebral, abdominal, and thoracic, 1; almost all the cases had some abdominal complications.

In one instance there was fistulous ulcer of the fauces, and ulceration of the mouth and lips, continuing all through the fever. Nitric acid was used beneficially.

In another, paralysis of the left side, presenting also difficult respiration from oppression of the brain.

A third exhibited inflammation of the elbow-joint, accompanied with relief of the head-symptoms; then suppuration came on with great discharge, lasting four days; it healed up at once.

A fourth presented synovitis of the right knee-joint, which, like the preceding, terminated in resolution. Iodine painting used.

In three cases a dangerous quantity of blood was passed per anum.

In one there was spitting of blood.

In one ulceration and discharge of blood from the back part of the nostrils and throat.

Deaths—Seven; of which the proximate or secondary cause was from—

Effusion into the brain	2
Previous chronic bronchitis	2
Recent bronchitis	1
Head, chest, and abdominal complication	1
Perforation of the intestine	1

The *post-mortem* appearances in this last were “perforation in five places and ulceration in as many more, extending from about six inches from the ileo-cæcal valve upwards for two feet.”

Mr. Lewis reports, that the cases which passed under his observation, “varied much in their type and duration.” I shall quote his own words further:—“I had four cases in one family, two of which proved fatal. Three of these were true typhus; the other cases were more properly continued fever. The symptoms they had in common, were mild delirium, disposition to sleep, much deafness, dryness of the skin, tremor of the tongue. No particular organ seemed to be especially affected—*i. e.*, there was no uniformity in the complications. A serious relapse happened in one case after advanced convalescence, from eating a too hearty meal of cockles and tea. The duration varied from three or four days to four or five weeks; the convalescence was slow and prolonged. With regard to treatment, I observed nothing that could serve as a guide in future cases. I believe a moderately stimulating and tonic plan was admissible in an early stage. I had no *post-mortem* examinations, but the ‘tendency to death’ in the fatal cases was by stupor and asphyxia.”

Mr. Lewis observed perspirations early in the dis-

ease. The question arises, were these to be regarded as critical resolutions?

I am permitted to remark, that Mr. Bickersteth considered “very few of his” numerous “cases could be called typhus, but simple continued fever; they had no distinct peculiarities.”

Mr. Bainbrigge, of Everton, had thirty cases of well-marked character, two of which became typhoid, but were not fatal. Rigor, furred moist tongue, and severe pains in the head and neck, were the general features. The pulse would be from about 84 to 96 at first; then in three or four days extreme depression would usually supervene, requiring stimulants. Afterwards, sooner or later, a stage of reaction or excitement would follow, accompanied with diarrhœa, and a glazing, cleaning, and cracking of the surface of the tongue. Crisis in some cases either by diarrhœa or some other evacuation. The low delirium, associated with watchfulness, was also notably present in the generality of instances, though the patient was capable of being roused to consciousness on being energetically addressed.

Convalescence was usually tedious; in one instance coupled with a loss of memory of names. In another instance a girl relapsed, and bloody stools appeared, which were checked by matico. Mr. Bainbrigge’s own experience was in favour of the compound chalk and opium powder when diarrhœa existed, in preference to Dover’s powder. He was enabled to cut short some of the commencing attacks by emetics and a dose of calomel.

Mr. G. B. Denton, of Everton, has favoured me with the following statement as the result of his experience.

Everton and Kirkdale:—The majority of fever cases were situated on the higher part of Everton, a few under the brow of the hill, and sheltered from the east. No cases occurred in courts, and in almost every instance there was the greatest cleanliness existing in the family, and nothing in the immediate neighbourhood to engender fever.

The ages of the fever patients were:—

Under 10 years 9			
From 15 years to 20	„	3	
„ 20 „ 25	„	3	
„ 25 „ 30	„	6	
„ 30 „ 35	„	3	
„ 45 „ 50	„	3	
	63	„	1

The last four cases were very severe ones; my two worst were at the ages of 29 and 32.

Sex.—Females, 22; males, 6.

Symptoms.—The cases that came under my notice were two of low typhus, commencing with great depression of the nervous, and scarcely any excitement of the vascular system. In the one case the temperature of the skin was not increased; the pulse was exceedingly rapid and weak; at times there was great excitement of the brain, but generally there was a restless muttering delirium; the tongue dry, brown, and tremulous, (this tremor was general throughout the muscular system;) sordes appeared at a very early stage of the disease; the stools were passed involuntarily, and of a very offensive character. This



patient died on the eighth day, and for two days previously there was great congestion of the face, with profuse sweats. This was the only death that occurred among my fever cases, and of this no *post-mortem* examination was made. The patient had been in very delicate health for two years previous to the attack of fever.

The other case of low typhus presents no great peculiarity; there was great depression of the nervous system; very haggard anxious countenance; no delirium; a tendency to diarrhœa; tympanitis; no tenderness of abdomen. As the fever subsided hernia humoralis came on.

Six cases terminated in typhus, but commenced with disturbance both of the vascular and nervous systems, which assumed a remittent form for a day or two. Two of these were very severe cases. One case was attended with great gastric irritability and tympanitis; there was no tenderness of abdomen; this patient was two months before she could stand, and suffered severely from bed-sores. Five cases occurred in a manner similar to the preceding, and remained for about three weeks very ill with continued fever, without any symptoms of decided typhus.

Fourteen cases that commenced much in the same way improved after the first four or five days, and for the next week or fortnight, debility, quick pulse, white tongue, and occasional flush, were the only characteristics of the complaint. These patients felt very well in the recumbent posture, but were quite unable to sit up. One patient of this class who, in spite of her own feelings, sat up during one day, was seized with violent delirium at night, and typhus continued for some days.

The only symptoms that I may say were common to all these cases were, prostration of strength, depression of spirits, loss of appetite, quick pulse—average 120, and furred tongue. In most cases there was pain in the head and back, together with aching of the limbs; the pain in the head seldom continued more than a day or two. There were several cases which commenced without rigors; the temperature of the body was seldom much increased after the first few days; and in some cases there was moisture over the surface. I did not observe petechiæ in more than two cases. Restlessness and absence of sleep generally occurred for the first few nights, after that period sleep returned; very few suffered from delirium, more from disturbed dreams, but the majority were free from either. The countenance in some cases was haggard and anxious, but in many this great characteristic of fever was but slight. In the first eight cases the tongue was dry, brown, tremulous, and sometimes cracked; sordes appeared about the teeth; in the other cases the tongue was neither brown nor tremulous, frequently moist, and no sordes. The pulse, with the exception of one or two cases, was quick, and did not vary much; but in one case where sudden sinking came on at two different times without any apparent cause, powerful stimulants were required to keep the pulse steady. In the majority of cases the secretions were not much affected; there was little thirst, and in only one case was there vomiting; in no case was there actual diarrhœa, although in many cases the bowels acted without aperients, and frequently opiates were administered to prevent diarrhœa. Constipation often occurred. I had no case of hæmorrhage of the bowels. I was often struck with the bulky

evacuations after the fever began to subside, although at the commencement of the attack I had considered the alimentary canal to be fully cleared, and the patient had taken little nourishment in the interim. Hiccough only occurred in one case, and was not a fatal symptom, although the patient was 63 years of age.

*Complications.* Two, thoracic, pleurisy and bronchitis; one, abdominal; one, cerebral; one, hernia humoralis. In the cases of two children I observed a cluster of vesicles on the back of the wrist, as the fever was subsiding.

Date of 1st case, Nov. 12th; of last, Dec. 26th.

From Nov. 12th, to Nov. 18th, fresh cases 15

„ „ 19th, „ 25th, „ 7

„ Dec. 8th, to Dec. 26th, „ 6

The *treatment* I adopted was, in the first instance, to clear out the alimentary canal generally with calomel and James's powder, followed by salts and senna, unless there was diarrhœa or tenderness of the abdomen. According to the nature of the case I gave simple effervescent salines, in combination sometimes with chloric æther or tartar emetic, but very rarely the latter, as I found it could seldom be borne, especially by children. I gave mild aperients when the bowels were confined, and where there was irritability of the mucous membrane I ordered injections instead. I gave Dover's powder or henbane and morphia at night if the patient was restless, but seldom found it necessary to prescribe them; when the bowels were too open I ordered an injection of starch and laudanum, or an opium suppository. I always admitted plenty of fresh air into the sick room, and in one case where symptoms of typhus were threatening, removal to a large room quite checked them. In very few cases I found it necessary to give wine; but where the pulse was rapid and the tongue dry and brown, it invariably checked the one and moistened the other. Camphor in one case produced most striking relief in checking subsultus tendinum. I tried tonics in two cases where there was only debility with quick pulse, and white tongue, but they could not be borne. In two protracted cases of fever I found small repeated doses of quinine and morphia to agree very well. I may say my main treatment consisted in supporting the system where it could be borne, and attending very closely to the pulse, and giving stimulants accordingly.

I cannot say that my observation enables me to give any report of the fever modifying other diseases. Acute amenorrhœa, from exposure to cold, ended in this fever. I would also state, that in several cases of fever there was a periodical return of the catamenia, and that in two of my worst cases it came on within the first week of the attack.

I would draw your attention to the fact, that in one house there were four in one family, besides a servant and a nurse, attacked with fever. As regards the question of contagion in the family, I would mention that two cases occurred simultaneously, the third two days afterwards, and the fourth the day following; a month elapsed before the other two cases commenced. Fever, many years since, occurred in the family when four were very ill with it, and two died. This year three of them had it so badly that one died, and I despaired of the other two; the fourth had it mildly; she had had it previously, and then of a mild



character. In another house a servant was taken ill with fever one day, and the lady of the house the next. I had only two other instances of more than one being ill with fever in the same house.

Mr. Long has seen eight or nine cases presenting cerebral complication. One case died on the fifth day collapsed; there was muttering delirium or incoherency, and watchfulness at night, for which morphia was given.

Mr. Ellison observed more complication of the respiratory system than of the digestive, associated with muttering delirium. The majority of his cases occurred in the middle or upper part of the town. At the Blue Coat School, to which he is attached, there occurred forty cases.

Presented a typhoid character . . . . .	2
Bronchitis . . . . .	2
Pneumonia . . . . .	1
Severe gastric symptoms . . . . .	2 or 3
Hæmorrhage from the bowels, tenderness over the ileo-cæcal region . }	1

At the Borough Gaol, (situated at the north end of the town, near the docks,) Mr. Archer, the surgeon, had only had one case, which was sent from the fever-wards.

Mr. Blackburn saw two cases of mania,\* apparently attributable to the epidemic.

Dr. Roche has furnished me with the details of two cases, both of which I saw along with him, and which I think worthy of particularising from the prominence of certain symptoms and complications.

Mrs. T. was seized with rigor on the 1st of November, after which the usual symptoms set in. Amongst these symptoms severe pain in the back part of the head was remarkable. In a few days epigastric tenderness was discovered, which was immediately met by leeches, and relieved. The symptoms assumed the remittent type early in the disorder, so marked, as to realise two distinct daily, (and one nocturnal,) exacerbations.\* There was great prostration of strength following these remissions, accompanied with continued heat of skin and pain in the temples, along with some degree of intolerance of light. Leeching mitigated these latter symptoms. For several nights but little sleep could be procured. Exacerbations lost their distinct character, though broken into quotidian.† After the bowels were regulated, an opiate with wine was given with the best effect, upon which the exacerbations became indistinct, and the pulse fell. Wine was given more liberally, with light nourishing diet, and the infusion of calumba, with aromatic spirits of ammonia, ordered. The appetite returned, and convalescence was establishing, in the course of which a curious circumstance occurred:—As she was assisting herself to rise in bed, she

\* This would appear to have assumed the features of the double quartan. or the triple tertian, both of which have two paroxysms on the one day. It may be remarked that the quartan form is the “most prevalent in autumn in very young persons, in *females*, and in the lymphatic temperament.” Quartans, too, are more obstinate than tertians.—*Copland* 935.

† “Agues, particularly quotidians, may also be converted into remittents, or even into the continued type, by the constant operation of the exciting causes, or by other powerful determining influences; but they often assume a complicated or an irregular form in the course of transition.”—*Copland*, 936.

placed her right hand behind the back for the purpose of supporting herself, when the wrist suddenly gave way, or turned, and bent forward, and much pain was felt. After this the hand became stiff and cold, with numbness. On Dr. Roche's arrival he could not detect any pulse in the radial artery, though he could perceive the pulsation of the brachial sufficiently well; this condition of the hand remained for several days. The hand was wrapped in flannel. On the third day Dr. Roche gave me an opportunity of verifying the fact, which proved, on the best examination I could make, to be perfectly correct. There was no radial pulse. On the fifth day the hand and fore-arm became less painful, and she regained by degrees some use in the hand, and the natural warmth returned; after which, (December 11th,) the radial could be felt distinctly, but feebly, pulsating. The wrist affected was the one always previously felt for the pulse.

The second case presented more ordinary characters:—Mr. E. was attacked with rigors on the 8th of November. Dr. Roche was called in on the 12th, when he found the furred moist tongue; pulse slightly raised above the natural standard; skin hot; general lassitude; and constipated bowels; headache not great; tender epigastrium, which leeching relieved; great intellectual excitement, with inability to sleep; but no delirium. In a few days after laxative medicines and effervescing salines had been given, the general febrile symptoms were resolved, and the appetite began to return, although great prostration of strength continued. Wine was administered with apparently good effect, and the muriate of morphia was used successfully to procure sleep. On the 14th of November, (sixth day of attack,) during the very heavy fogs prevalent at that time, bronchitic symptoms set in, not of an acute inflammatory order, but of the congestive form. Ipecacuanha and hyoscyamus were given, and the croton oil rubbed in over the chest, whilst the bowels were not overlooked. He seemed rather relieved for four or five days, when great oppression of the chest came on, and in two days delirium set in; the pupils became dilated; the bronchial râles could no longer be detected; the respiratory murmur was inaudible throughout; an extensive and marked crepitus presented itself along with dulness generally on percussion; the vital powers were prostrated; and the delirium, though of a mild character, was more pronounced at night. At this stage I saw him. We decided that carbonate of ammonia should be given, with camphor, and wine liberally, and a full dose of Dover's powder at bed-time. At our subsequent visits we had the gratification to observe some amelioration, and we put a large blister over the chest; (the croton oil had not produced much effect.) It is not necessary to follow up the diurnal changes. The blister and remedies had recovered the balance of the vital functions; the chest sounded clearer; the râles returned posteriorly as well as anteriorly; expectoration of mucus came on; and all the symptoms improved. The patient finally recovered, and set off for the south of England.

This case is of more practical value than the more curious incident of the former case, because it supplies a caution on the subject of relapses. The patient had reached that stage of fever which is usually termed convalescence, and which is too frequently regarded as equivalent to restoration of health. Perhaps we



are too apt to pause in our vigilance, to indulge in a little breathing after a prolonged combat, like the Carthaginian General of old, who delayed to prosecute his good fortune, by stopping short of the Roman capital, beguiled by the green fields of Italy, and urged to the indulgence by a sense of fatigue. But if such was fatal to his grand enterprise, so I feel persuaded our first victories over our still more subtle foe are apt to engender likewise in ourselves a desire of halting, and a natural wish for cessation of arms. If the temptation be once yielded to, at such a point, let the previous struggle have been one ever so prolonged and wearying, we are betrayed into a position as false as Hannibal's generalship ever was, three days short of Rome. Our stealthy foe prostrated, but not subdued, rallies again to the deserted posts, and we have again to contend with it at a most serious disadvantage, wherein too often the conservatism of nature and the auxiliaries of art are too feebly rallied ever to regain the lost ground, and the crusade of medicine terminates in such case, in ignoble and irreparable defeat.

The stage of convalescence is a stage of fever, and the older writers kept this more distinctly before them than the modern practitioners may at all times recollect; or at least we may err by resigning our invalid to the charge of indiscreet relatives and friends, a great deal too soon. Convalescence, in its old Latin synonyme, "*stadium refectionis*," should be accepted as implying an improved stage of the disease, in accordance with the safe and philosophical views of Richter and Hildenbrand, and I may add Copland, distinct certainly from the malady, because it "does not present any of the constituent phenomena, which still continued to exist in the stage of decline, but merely those of debility consequent upon acute disease." (Copland, p. 902.) To the stricter guard kept over the *stadium refectionis*, as well as to the more prompt remedial measures and more attentive nursing, ventilation, &c., must be ascribed the diminished rate of mortality in Fever Hospitals generally, over that of private practice. I do not precisely know the rate, but believe it to be—

In private practice as . . . . . 1 in 10

In Fever Hospitals as . . . . . 1 in 12 or 13

In the case to which these remarks are appended, the great debility, at the time when the appetite and digestion improved, shewed a degree of exhaustion of nervous power, disproportioned, if I may say so, to the general mildness of the previous six or seven day's fever, and which amounted, in this and in vast numbers of other instances, in private practice at least, to an extent commensurate with typhus itself, and only found analogy in recent disorders amongst the cases of the epidemic influenza. In both of these epidemics the recoveries have been remarkably tedious, and they have both been characterised by a peculiar amount of depressed nervous energy, and a sub-inflammatory condition of organs which, at another period, would have assumed a purer inflammatory type.

I do not mean to infer that there was the slightest remissness in watching over the recovery of the case now under consideration; so far from it, I believe my medical friend to be a conscientious practitioner, to whom a sense of duty would serve as a wise guide in watching over the interests of his patient; but relapses have often presented themselves in the course of this epidemic, and I believe this tendency to relapse is

to be traced to the peculiar atony of the nervous system, and not to any neglectful practice. That such debility in convalescence is the cause of sudden internal stases or congestions we all know, and the occurrence of congestive sequelæ was sufficiently marked in the late fever by unequivocal symptoms during life, as well as by organic changes noticed on examination after death.

In the pulmonary embarrassment, constituting the prominent feature of relapse in this case, I infer that there had arisen a state of the pulmonary tissue, not inflammatory, nor apoplectic exactly, but an infiltration of sanguineous fluid, and a species of stasis, known to pathologists, and described by Dr. Copland, as follows:—"In low forms of fever, the changes that supervene in the bronchial surface, or in the substance of the lungs, as well as those that take place in the alimentary canal, possess but little of the truly inflammatory character, excepting capillary injection, sometimes with infiltration of a sanguineous serum into the adjoining tissues, or with effusion of a similar fluid from the injected surfaces." P. 920. If the case terminates fatally under pulmonary distress, then the œdematous, or infiltrated structure, will give proof, beyond what the stethoscope could give during life, by presenting softening, along with these evidences of gravitated circulating fluids, denominated by Laennec, *peripneumonie des agonisants*, an alteration preceding death as well as consequent upon it.

Among the complications of this fever were several instances of inflamed veins. A mild form of this affection was remarked in the case of pulseless wrist of Dr. Roche's; it occurred in the right leg; pain extended along the inner side of the thigh and leg; there was no swelling, no dark venous line or cord-like feel; it lasted for ten days, and the groin continued stiff for some time; the general character of the pain was of a sharper nature than common rheumatism, even when acute. Frictions were employed, and proved most suitable.

Dr. Inman also had a case which occurred during convalescence. At first pain appeared in the calf of the left leg, without swelling; in five days the pain became intense, and was accompanied with tenderness over the femoral vein for about a hand's breadth along the course of this vessel. The patient recovered under leeching.

Another case presented a fulness in the groin at first; thirst present; pulse 140; no other complication; tongue dry, clean, and glazed, white in the centre; delirious only one night; nights generally sleepless. Hot fomentations were used to the limb; quinine had been taken along with wine; as convalescence advanced both were left off. Sore-throat appeared, along with ptychæ, on the eighth day; no diarrhœa; partial perspirations; diameter of the calf of the leg more than that of the corresponding one; no œdema of foot or leg. Recovered.

A fourth case lasted three weeks. Another case, at Everton, occurred under symptoms of relapse. One in Rodney street presented itself to Dr. Inman, and was a very severe case. The patient was delirious for three weeks, presenting abdominal complication till the twenty-fourth day. She supposed another person was always present on her left side; she would fancy whatever she wanted, that her supposed companion also wanted the same thing.



# REMOTER IMPRESS OF THE EPIDEMIC CONSTITUTION.

Mr. Fell, surgeon to the West Derby Union Workhouse, has taken the trouble to supply me with the following account:—In the neighbourhood of Edge Hill, (the same ridge as Everton,) several women after labour, have contracted a febricula, not always of a very mild form. Pulse up to 100 and 120; (a pulse at this standard in child-bed, has been said by Sir Charles Clarke to indicate danger, and obstetricians generally agree with him;) tongue dry and hot; skin in one case red; lochia diminished but not suppressed; milk scanty; urine likewise, as far as could be estimated. Infant did not suffer. Commenced with a rigor, and was followed by perspirations but not critical; head uneasy; peculiarly restless at night; no delirium. In some cases the fever set in about twenty-four hours *post partum*. Duration six or seven days. No phlebitic symptoms observed.

A case occurred at the workhouse, in a paralytic young man, who, whilst taking small doses of strychnia, got a congestive attack of the lungs. It is not clear whether it was due to the atmospheric constitution or to the remedy.

Hooping cough and croup were severe during this period. This observation is confirmed by my own experience. I had occasion to notice in my own person the remote effects of the febrile constitution in a peculiar restlessness at night, continuing for weeks of the period referred to, along with frequent pain in the calf of each leg. I believe several others in the profession and out of it experienced the same annoyance.

Phlegmasia dolens and erysipelas occurred concurrently with the epidemic in nurses and pregnant women. In the West Derby Union Workhouse, a pregnant woman had idiopathic phlebitis; severe rigor; pulse 140; leg very much inflamed and swollen. She was relieved by leeches and purging.

The epidemic was not limited to human subjects, for it certainly presented itself also as an epizootic. Amongst horses this was remarkably the case. In my own neighbourhood a groom showed me a valuable horse, evidently labouring under fever, and the veterinary surgeon in attendance told him that he never saw so much fever amongst these quadrupeds. The symptoms were,—head hot; thirst; prostration of strength; eyes suffused; submaxillary pulse, up to 60 or 70; rolling about of head, and running backwards in his box, or beating the head against the hay-rack or manger. It is singular that the essential characters of the epidemic should be observed also in the epizootic, in the correspondence of certain symptoms, particularly the head-attack.

V. *Crisis*.—This termination was seldom or never marked. In this epidemic there were no data to favour the doctrine of crisis.

## VI. Rate of Mortality—Deaths in Fever Wards:—

From September, 1843, to January, 1844	1 in 10
Corresponding period of preceding year	1 in 16
For the three months preceding, viz.,	} 1 in 30
June, July, and August, 1843 . . .	

Thus the deaths increased in the proportion of three to one, whilst the number of admissions for this epidemic period were only increased by one third over the corresponding period in the previous year.

Private practice yields no accurate data.

## VII. Post-mortem Appearances.—

Cases.	Organs Affected.		
	Head.	Thorax.	Abdomen.
1			Perforation of intestine, with inflammation of peritoneum.
2		Congestion of right lung	Great intestinal congestion, with slight ulceration.
3	Opacity of arachnoid, with slight subserous effusion.		Great intestinal congestion. No ulceration.
4			Numerous small ulcerations through small intestines, & large ulcers of colon and rectum.
5		Bronchitis	Ulceration of intestines (small.)
6			Great vascular intestinal congestion and softening.
7	Slight opacity of arachnoid, and subserous effusion.	Congestion of lung	Enormous destruction of mucous membrane of small and large intestines by ulceration.

*Autopsy of Sarah Wood, twenty-four hours after death.*—Neither brain, lungs, heart, nor kidneys, presented any remarkable appearance, being carefully examined. On opening the peritoneal cavity, there was an escape of a considerable quantity of foetid gas, and a small quantity of sero-purulent fluid, mixed with lymph shreds, was found; also a thin coating of lymph on the right abdominal paries, covering and gently glueing together the small intestines, and very slightly on the right lobe of the liver and corresponding portion of the diaphragm. The liver was slightly congested, and the gall-bladder distended with bile; bladder empty. On examining the stomach and intestines, the lower portion of the ileum was found in many places very pale and thin, and at about a foot from its junction with the cæcum there was found a perforation of the size of a fourpenny-piece, having one edge ragged and covered with lymph, the other edges smooth, and bevelled off in the interior; the mucous coat being abraded around the orifice for two or three lines, and then for double that extent being plum-coloured. It does not appear that any faecal matter had escaped, but that adhesion of the corresponding intestines had prevented this. No other perforation was discovered, but the colon near the sigmoid flexure was covered with a black melænous fluid, to the extent of five or six inches, which being removed showed the mucous coat to be underneath of a dark plum-coloured hue, and soft. The uterus was healthy, but both the ovaries presented a very ecchymosed appearance, but on being cut through this was found to be confined to within two or three lines of the surface. The vena cava and iliacs were examined, and were found natural.

Winifred Evans, aged 17, unmarried. *Very marked case of Fever, in the Fever Ward under Dr. Dickinson.*



—For nearly ten days pulse never under 130, generally 140; lowest pulse never below 100. Skin, at first cool and bloodless; then harsh, and dry, and hot. Tongue, at first furred and creamy, afterwards black, dry, and furred, ultimately bright, red, and moist; black mucous sordes on gums; discharge of much fœtid, thin, ichorous, and wheyish matters from the ear, succeeding ulceration of throat. Left leg excessively swelled, painful on pressure, of waxy aspect, especially tender along the course of the saphena vein; extreme sensibility of surface of body during the greatest portion of time, so much as scarcely to bear touching. Extremely dilated pupils, without delirium; great wakefulness; anxious countenance. Throat tender; fauces extensively ulcerated, ash-coloured in the centre with purple ragged edges, occasioning great difficulty of deglutition. Breath occasionally exceedingly offensive. Throat-affection ultimately subdued by the nitrate of silver. Stools first clay-coloured, with great tenderness over right hyperchondrium at the same time; after two doses of calomel the stools became very dark. Tympanitic, and very tender abdomen; the tenderness of the abdomen continued more or less till death; diarrhœa set in towards the last, and could not be overcome by the usual remedies.

On examination after death the whole body was found extremely emaciated; the intestines were extensively ulcerated, numerous small ulcerations being found throughout the course of the small intestines, and large ulcers in the colon and rectum.

VIII. *Treatment*.—From much that has preceded both of special cases and the kind of treatment most successful, it will be inferred, as well as from the general character of the symptoms themselves, that the judicious use of stimulants was universally demanded, either alone or conjointly with local depletion, especially that form of stimulation under which the application of blisters must be classed, whether the stimulus be considered to act simply topically on the region to which it may be applied, or generally upon the nervous and vascular systems, as some believe.

It has been remarked that both scarlatina and typhus occurring at this time, required stimulants more than ordinary, and such will be found to have been the case, I feel certain, with many other forms of concurrent disease.

Though I have not said much on this point, because in fact, the treatment has been detailed in private cases, &c., sufficiently, and more especially since little if any light is to be at present thrown upon this obscure department of medicine; yet I shall be excused in bringing forward a case which occurred to myself, because it stands an exception to the general rule touched upon in the former part of this paper, wherein it was observed that the epidemic rarely admitted of being judiciously encountered by the lancet, or other extreme antiphlogistic measures, whilst it was as certainly required by marked indications for the use of it in a few instances, as the subjoined fact will show:—

A gentleman, of robust form and constitution, and about thirty-three years of age, came on a visit from the country, in the usual full health of those carrying on agricultural pursuits, to his friends in Liverpool, who lived just outside the town, and within the line usually observed by the malarious agency. A day or two after he came he went one evening to the theatre, and staid out many hours of the night, returning to the house of his friend about four o'clock in the

morning, chilled and fatigued. In the course of the day he felt feverish and malaised; towards evening he took a senna draught, which operated, but without relief to the accumulating symptoms of fever. At midnight I was sent for, and found him in bed, prostrated on his back; head hot; face flushed, and the countenance of the heaviest dullest expression I ever saw. He was supine in our hands, resisting nothing; incapable of being roused to reply to a single question; in short he lay like a log of wood; and his feet, hands, and surface cool, though hot bottles had been applied to the feet. In this case I saw an imperative call for the lancet, which I therefore did not hesitate to use freely. He gradually returned to something like consciousness; he rubbed his forehead, wiping off a copious perspiration, which had come on there, and then overspread the whole surface of the body. The blood was exceedingly dark until 12 or 14 ounces had been drawn, when it brightened, and I stopped at about 20 ounces. I descended into the parlour to prescribe a full dose of Dover's powder with calomel, and a message came soon to tell me that my patient wished to see me, for that "he did not know the doctor had been." I returned, found him bathed in perspiration, and quite changed to a conversible man. The opiate procured some hours of calm sleep, and the chain of febrile action was fairly broken, so that followed up by another senna draught he was quite convalescent, though weak, and came down stairs the third day.

I have not brought forward other cases of my own, as my duty has been rather that of grouping around my observations the scattered experiences of other practitioners, but could not omit this single case, as it shows the epidemic impress on a country constitution, in pure and marked characters, and would have proved a tedious case of intermediate congestive fever, and perhaps highly complicated, if it had not yielded at the first to venesection.

If any single remedial agent could be more specified than any other as presenting general beneficial results, it would be the employment of calomel in successively minute doses. Too much stress can hardly be laid upon the value of the "laissez aller" plan, where the bowels were irritable, avoiding the use of routine purges, but where necessary, having recourse to simple "lavemens," whereby frequently a purer phase of fever was advantageously preserved. Perhaps the freer employment of camphor amongst us might have proved eminently serviceable in allaying the anomalous disturbances of the nervous system.

IX. *Districts invaded*.—*West-Derby District*.—To the Board of Guardians for West Derby, I am indebted for the permission to refer to such of their reports of the district as were within their reach; and from these reports, however, imperfectly abstracted, I gleaned the following particulars. I ought to add that, though I obtained this information from the proper authorities, as custodians of the books under the Poor-Law Act, instead of making application individually to the medical officers, with the view of sparing myself further trouble and expenditure of time, I hope my medical brethren will do me the favour to take in good part the omission of this piece of professional courtesy, seeing it is for a public purpose, in the prosecution of which we must all give them credit for feeling as deep an interest as ourselves.



## WEST-DERBY MUNICIPAL DISTRICT.

Comprising Edge Hill and Windsor, a suburb skirting the town on its Eastern side, ranging from Everton on the North, to Toxteth Park on the South. From invasion of attack to the end of the year.

No.	Disease.	Place.	Age.	Sex.
1	Scarlet fever	Harding Street, Windsor	10 years	Female.
2	Ditto	Ditto	4½	Female.
3	Bilious attack	Village	46	Female.
4	Inflammation of chest	Harding Street	4	Male.
5	Diseased brain	Edge Hill	55	Female.
6	Inflammation of chest	Falkner Street	1¼	Female.
7	Ditto	Edge Hill	5 months	Female.
8	Scarlet fever	Harding Street	8 years	Female.
9	Inflammation of chest	Glasshouse Lane, West Derby	6 weeks	Male.
10	Bilious attack	Village	46 years	Female.
11	Inflammation of chest	Jubilee Street	2	Female.
12	„ brain	Wavertree Road	9½	Female.
13	„ bowels	Harding Street	9	Male.
14	„ chest	Jubilee Street	2½	Male.
15	Debility, consequent bronchitis	Parliament Street	4½	Male.
16	Inflammation of bowels	Stanhope Street	1 month	Male.
17	Scarlet fever	Village	2 years	Male.
18	Inflammation of chest	Etna Street	1	Male.
19	Scarlet fever	Harding Street	5	Female.
20	Inflammation of lungs	Norris Green	3	Male.
21	Measles	Wood Street	13 days	Female.
22	Scarlet fever	Edge Hill	3 years	Male.
23	Inflammation of lungs	Spittlefield Cottages	1	Female.
24	Ditto	High Street	7 months	Female.
25	Typhus fever	Hope Street, West Derby	31 years	Male.
26	Inflammation of lungs	Walker Street	1½	Female.
27	Small-pox	Town Row	2	Male.
28	Measles	Church Road	2½	Female.
29	Jaundice	High Street	2 months	Female.
30	Inflammation of brain	Clarence Street	17 years	Male.
31	Ditto	Village	9 days	Male.
32	Scarlet fever	Myers Street	2½ years	Female.
33	Small-pox	Town Row	9	Male.
34	Scarlet fever	Barton Lane	3½	Female.
35	Small-pox	Town Row	5 months	Female.
36	Scarlet fever	West Derby Street	3 years	Male.
37	Inflammation of brain	Jubilee Street	3	Female.
38	Typhus fever	Moss Street	27	Female.
39	Ditto	High Street	13	Female.
40	Scarlet fever	Myers Street	7	Male.
41	Typhus fever	Mason Street	1½	Male.
42	Brain fever	Kennington	15	Female.
43	Typhus	Fairclough Lane	51	Male.
44	Dysentery	Dalton Street	25	Female.
45	Inflammation of bowels	Mason Street	2	Female.
46	„ lungs	Crosby Green	2	Male.
47	Scarlet fever	Harding Street	3½	Male.
48	Typhus	Newnham Street	73	Female.
49	Ditto	Moir Street	48	Male.
50	Scarlet fever	Swan Street	10	Male.
51	Ditto	Harding Street, Windsor	2½	Male.
52	Typhus fever	Low Hill	12	Male.
53	Scarlet fever	Dalton Street	15 months	Female.
54	Typhus fever	Knotty Ash	15 months	Female.
55	Inflammation of lungs	Walker Street	9 months	Male.
56	Scarlet fever	Barton Lane	2 years	Male.
57	Inflammation of chest	Old Green	2 months	Male.

Males..... 28; Females..... 29; Total..... 57.

The youngest of the fever patients was 15 months; next 1 year and a half; then 12, 13, 27, 31, 48, 51; and the oldest 73.

Of these diseases, nine cases are recorded as typhus, fourteen as scarlet fever, one as brain fever, two as measles, two as bilious derangement, four as inflammation of the bowels, dysentery, and jaundice. The remainder stand out distinctly as being of more or less pure inflammatory type of certain organs,—such as the lungs, brain, &c., or eruptive disorders, such as small-pox, which could not be associated with the epidemic by any construction; and lastly, those disorders of the extremes of life, which are also removed from the field of the epidemic attack, which other tables shew to have seized upon the term of life comprised within the years of ten and forty chiefly. For the 32 cases selected, perhaps without impugning the diagnosis of the observers, some degree of latitude might be allowed on the ground that the precise features of the epidemic were not striking or recognizable. With the exception of Moss Street and Moira Street, the fever cases have kept pretty much on the ridge of the high ground, leading from Everton to Edge Hill, (including Low Hill,) and descending down to the plain whereon Windsor is situated, on a level corresponding with the highest part of the town of Liverpool itself, to which plains the fever restricted itself.



WEST-DERBY UNION WORKHOUSE.

Fever Cases.

I am indebted to Mr. Fell, the surgeon to the Institution, for the following entries of cases from his diary:—

Invasion of Attack. Age.			Duration.	
1	Oct. 4th	14	Convalescent on 10th	6 days
2	„ 6th	14	„ 8th	2 „
3	„ 16th	19	„ 19th	3 „
4	Nov. 27th	9	Died 28th	1 „
5	Dec. 1st	10	Boy with measly eruption, convalescent 9th	8 „
6	„ 2nd	6	Cerebral irritation	

The above are all the cases which occurred in the house during the four months of the epidemic visitation.

During a part of the corresponding period, in the year preceding, (1843,) whooping-cough and severe catarrhal affections predominated.

WEST-DERBY MUNICIPAL AND RURAL DISTRICT.

The subjoined tables are from Mr. Greatrex's book:—

SEX.			
Males, 17; Females, 18; Not entered 1. Total 36			
AGE.	Males.	Females.	Total.
Up to 10 Yrs. inclusive	12	8	21*
10 to 21	3	6	9
20 to 30	1	0	1
30 to 40	1	1	2
40 to 60	0	2	2
At 75	0	1	1
			—36

\* (The sex of one was not entered.)

ORDER OF INVASION.

Sep. 12	1	Nov. 12	2
„ 14	4	„ 13	3
„ 17	1	„ 14	2
„ 29	1	„ 15	2
Oct. 3	3	„ 16	3
„ 14	1	„ 18	2
„ 21	3	„ 25	2
„ 28	2	„ 28	1
Nov. 11	2	Total—	36

DURATION.

1st week	5	4th week	4
2nd week	6	5th week	2
3rd week	16	Still on books	3

Results.—Recoveries, 31; Deaths 5.

Out of these cases are to be deducted five of scarlatina, and four of small-pox. Of each eruptive disease one case terminated fatally. One of the scarlatina cases appears to have had an intermittent type superadded, and perhaps therefore ought not to be excluded.

A case called “fever” is also described as “intermittent” on the 21st day; another is styled “intermittent fever.” It may be worth directing attention to the former of the two, as affording an instance of the mutability of the type, in accordance with the general remarks before made, and its value is enhanced from the fact of its re-order not being committed to any theory, but only desirous probably to put down a fact. It is interesting to learn, from the same records, that eruptive and other fevers occurred throughout the spring months of the same year. Cases of measles,

and small-pox, and intermittents, are specified without fatal result up to June. Of small-pox several cases were noted in July, along with intermittent fever; then intermittent drops off, after which small-pox declines.

*Everton District.*—The following notice is from the book of the surgeon of the district, (Mr. Chalmers.) The extract is imperfect, but though wanting in statistics, it supplies some points of comparison which are valuable:—

1844, Oct. 1st, case of eruption; 9th, bilious disorder; 13th, influenza; 20th, diarrhoea; November 3rd, fever, continued on to 9th only; 9th, bilious attack, age 4, same name as last, probably of one family; 9th, dyspepsia, same family(?); 17th, fever, age 69, dated on as visited to 25th; 25th, fever continued on to December 1st; 30th, rheumatism and fever to December 2nd.

In 1843, during the same period, one case of fever only was recorded.

In 1842, during the same period, one case; in August and September, two cases are recorded under the head of bilious and typhus fever.

In 1840, in December, fever is recorded, and gastric irritation.

DISTRICT REPORT.

*West Derby.*—The prevailing epidemics, arising it is presumed from the exceedingly dense state of the atmosphere, have considerably added to the mortality of this quarter. There is an increase of forty-six deaths as compared with the previous quarter.

*Everton.*—An increase of deaths in this quarter, arising from increase of population,—from typhus, twenty-one; scarlatina, five; nervous and brain fever, three.

*Great Crosby.*—An increase of one over the September quarter. In this district there has been more sickness prevailing than in any preceding quarter since the commencement of the Act. Typhus and eroup were the only epidemics; those who died of typhus bearing the respective ages of 19, 29, 30, and 31 years.

At the end of August scarlatina appeared, and in September the first case of the epidemic presented itself, together with four cases of scarlatina.

The *Islington* district, which borders on Everton, appears to be one of the healthiest of Liverpool. The Registrar has furnished me with the subjoined:—

	1844	1843.
Typhus Fever Cases	12	10
Scarlatina	10	8

Hunter Street is the chief focus of the typhus in this district. The births exceeded those of the corresponding quarter by one-third more.

The Registrar-General's report of the Islington district is, that the deaths this quarter exceed those of the corresponding quarter of 1843 by forty, which increase I attribute to asthma, small-pox, and old age.

*Great Howard Street.*—A decrease of seven in comparison with last quarter; typhus has been very prevalent here, more especially in the higher ranks; my return includes eighteen cases. Small-pox appears on the decrease.

In the quarterly table of the mortality, (by the Registrar-General,) I find the following account, which serves to shew the increase of mortality on the quarterly average of five years, and five autumns, both for Liverpool and West Derby:—



## WEST-DERBY AND LIVERPOOL DISTRICT.

District.	Popul.	1838	1839	1840	1841	1842	1843	Quart. Average		Deaths in the autumn quarter ending December 31st, 1844
								Of five autumns	Of five years	
								1838-4		
Liverpool.	223,054	6627	7435	8470	7556	7407	7458	1875	1962	2131
West Derby, (Adjoining Liverpool)	88,652	1625	1746	2206	2202	2405	2312	509	575	814

The object of the plan of the town annexed to this report is simply to enable the reader to obtain a synoptical glance of the two *foci* of the fever districts, the one being the old and constant fever locality, the other the new epidemic range.

The old fever-district is indicated on the map by small *crosses*; these occur in the lowest parts of the town, not only as to topographical position, but also as to sanitary conditions. It is the worst ventilated, the streets being narrow and the courts frequently terminating in a *cul de sac*; drainage is imperfect; the houses are often crowded with so-called "accommodations for travellers," which frequently signifies\* a low damp cellarage, with the floor covered at night with straw, wherein are contained night "lodgings" for multitudes of human beings, who are huddled together irrespective of the common moralities of life. The numbers thus slenderly "accommodated" soon render the atmosphere of such a low-roofed den absolutely irrespirable for any one unaccustomed to breathe such pestilential air, and prejudicial in the highest degree to all animal life and health, unless the vermin around these human sacrifices be admitted an exception. The numbers of poor Irish and Scotch constantly passing through such a marine toll-bar as this large port really is, are thus made to contribute as a tax, their general and individual quota of personal loss, by contracting more or less ill health, in correspondence with the duties levied on inanimate things, so that hereafter it may be inscribed over the ruins of this modern Tyre, *Nihil tetigit quod non taxavit*.

Dr. Duncan's elaborate details, the publication of which has contributed so much to the remedy of these evils by exposing them to broad day, will furnish the reader with information and statistics on this and other heads, which, if he have not done so already, he will do well to read carefully, at least if he desires to form a true estimate of the condition of a large port of Great Britain in the nineteenth century, labouring under the disadvantages of legislative neglect of all sanitary laws. Whilst the continental powers have long ago wisely set us an example of watching over the health and morals of their people, performing their duties towards their neighbours and fellow-citizens, we have been occupied with our cumbrous and futile tariffs on goods. We have retained a no less cumbersome quarantine code, obstructive to commercial intercourse, though not to cholera or plague, whilst diseases have occurred in and about our doors, compared with the ravages of which, the periodical visits of oriental plague would have been a merciful exchange.

The new fever-district, or late epidemic range, skirted

\* The New Improvement Act is rectifying these evils in some degree.

the old all round; with rare exceptions, on the south end of the town, where it scarcely could be traced. This range over the greater portion of the suburban circumference of the town is indicated by two kinds of markings—viz., small dark spots upon white ground, and similar white spots upon the dark or tinted ground, and it will be thus plain at a single glance, how legibly distinct the one invasion is from the other. It will be further observed, that whilst the main body of these markings lie east and north-east of an imaginary line, which may be drawn from the north end of the docks, diagonally, and waved towards the south-east extremity of the town, yet that some of them are introduced where the crosses are placed. Such isolated instances will always occur in every epidemic, being the sporadic outposts of the epidemic—if such a term be lawful. The circumferences and centres of each respectively may thus be said to intersect one another. The touching places of the epidemic circumference, verging upon the old fever focus, are mainly laid down in proportionate accordance with the data of localities obtained from the officers of the fever wards and North and South Dispensaries, who have kindly taken the trouble to consult their books, and to whom, therefore, for enabling me to complete this portion of the report, I am much indebted.

With regard to the *number* of markings of either kind and their precise position, I do not pretend to the laborious accuracy of those sanitary maps, wherein the occurrence of each case is rigidly put down by a mark. The small size of the map and the extended range of enquiry from several parties, whose notes of cases in private practice would seldom attach exactly to the precise spot, prevents this accuracy being adopted; nor did I, when first entering upon the subject of this paper, contemplate going so far as I have done, or it might have been possible to attain, with a good deal of additional trouble, the desired exactitude. I was at that time also ignorant of the extent to which such sanitary maps had been carried out, and only became acquainted with these important particulars a few weeks ago, when Dr. Sutherland kindly pointed them out to me in the reports of the Commissioners for the Health of Towns. All I can advance then, with confidence, is, that a general rendering has been given, with as much fidelity as the nature of my materials and traditional knowledge enable me to give. I may add, that the map has been submitted for correction and criticism to the recent meeting of the Medical Society of Liverpool, and has received the benefit of the suggestions of the members.

There are no markings introduced on the Cheshire side, because I have not been able to learn that there were any cases on that side; at all events, if they did



present themselves, they were not numerous, for the practitioners I enquired of had not seen any.

The Dispensaries are situated at the north and south ends of the town, the Fever wards are in a detached building belonging to the Parish Workhouse, situated on elevated ground, between the Infirmary and the Medical Institution. These are all on a line, upon a hilly range, the south end of which, as it subsides towards Toxteth Park, has the cemetery, called St. James's, excavated out of its shoulder.\*

The Cheshire shore, bounding the Mersey opposite Liverpool, is introduced in order to show the site of the new docks erecting on the Wallasey Pool, as the years likely to be employed in their formation will probably furnish a number of cases of intermittent fever, from the mass of mud to be encountered, reposing on a sand and clay bottom, and to which I have here alluded for the sake of probable utility, though at the risk of being criticised for "travelling out of record" of the immediate object of my paper. The subject is, however, an important one, similar in nature to that with which I have been occupied.

I have also laid down in the map the course of the drain from the West-Derby Workhouse, which runs down by the wall of the necropolis, and receiving another drain, both after the confluence of their comingling streams, run underground for about two or three hundred yards, and then escape above ground on the hill side, and after pursuing an open course for perhaps a like distance, enter a culvert to get under Shaw Street, and join one of the main sewers.

I have obtained through the kindness of Mr. Gilmore, apothecary to the Workhouse, the localities from which each of the fever cases of Drs. Dickinson and Gouthwaite came, as far as they could be ascertained. Fifteen of these were "tramps," &c., and therefore could not be located properly. The bulk forming a majority by about one-third, came from places ranging within the general epidemic field, viz.:—

Everton Ward . . . 6	West Derby Workhouse 1
Abercrombie Ward . . 7	London Road . . . 1
Scotland Road . . . 15	Old Swan . . . . 1
St. Anne's Road . . . 6	Bootle and North Shore 2
Rodney Street . . . 6	Infirmary . . . . 1
a Workhouse . . . 29	Blind Asylum . . . 1
Edge Hill . . . . . 2	Lime Street . . . . 3
West Derby Township 4	Knotty Ash . . . . 1

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a The Fever Wards are attached to this.

The rest were from the districts which include within their bounds the old fever places. Some of these cases may be set down as typhus and continued fever. Six of them are stated to have come from the very haunts of typhus; four were all of one family, from St. Paul's Ward; and two more were sisters from one cellar in Vauxhall Ward. The districts are as follows:—

Gt. George's Ward . 19	Castle Street . . . 1
Pitt Street . . . . 14	Exchange . . . . 2
St. Paul's . . . . . 7	Vauxhall . . . . 11
St. Peter's . . . . . 3	Toxteth . . . . . 4
Bridewell . . . . . 1	

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\* This cemetery is merely an old stone quarry, out of which a great quantity of sand-stone was quarried for constructing the docks, &c.

The following table has been kindly furnished me by Dr. Sutherland from the books of the North Dispensary, which has most of the fever districts of the Town. Dr. Sutherland states, that "at the time when these cases were attended, there were very few cases in the usual fever district. All of those in the subjoined list were cases of the peculiar epidemic:—"

Date.	Sex.	Age.	Duration.
November 9th	Female	16	11 days
" 12th	Female	16	13 "
" "	Female	7	14 "
" 13th	Female	4	" "
" 14th	Male	10	21 "
" 16th	Female	17	18 "
" "	Male	8	21 "
" "	Female	3	" "
" "	Male	4	" "
" "	Female	6	" "
" 18th	Female	25	14 "
" 19th	Male	6	18 "
" "	Female	12	16 "
" "	Female	7	10 "
" 20th	Male	10	16 "
" 21st	Female	28	Sent to Fever Ward.
" "	Male	4	14 days
" 22nd	Male	18	21 "
" 23rd	Male	6	10 "
" "	Male	11	35 "
" "	Female	19	14 "
" 25th	Male	23	21 "
" 29th	Male	13	14 "
" 30th	Female	15	10 "
December 3rd	Male	5	6 "
" 5th	Female	23	13 "
" 7th	Male	14	21 "
" "	Female	5	12 "
" 8th	Female	26	14 "
" 9th	Female	30	Still sick
" 12th	Male	7	12 days
" "	Female	8	Still sick
" 13th	Female	32	Sent to Fever Ward
" 14th	Male	14	12 days
" "	Male	24	Still sick

Cases during the month of November .... 24

Cases during the month of December .... 11

Total Cases ..... 35

"Remarks.—In the cases treated from the Dispensary, the pulse was invariably frequent, from 100 to 120; the heat of skin was considerable, dry, and harsh; thirst was not much complained of. Head-symptoms were not very prominent; slight bronchitis was generally present. The tongue was dry, red, and glazed, as if it had been run over by a smoothing iron, but never very much loaded. In a few bad cases there were sordes on the teeth, whilst vomiting and diarrhoea were generally present, especially the latter. Pressure on the abdominal region was always complained of; the stools were mucous, and often mixed with blood.

"Treatment.—This consisted of simple febrifuge mixtures, (avoiding tartar emetic,) with hydrargyrum cum creta, and Dover's powder, in doses and frequency suited to the age and urgency of the abdominal or other symptoms. Rubefarients, as turpentine, over the stomach, were found very useful in checking the vomiting; stimulants were very seldom administered until the tongue was becoming moist. Depletion, local or general, was not employed in a single instance." (Report of the House Surgeon.)



I wish here to invite notice of the fact, that whilst, by the records of cases occurring on the higher parts of Everton, the prevalence of thoracic symptoms was more marked than that of abdominal ones, down in the more sheltered and crowded parts of the town the abdominal symptoms were most prominent; in other words, that whilst *diarrhœa* was an exception in the exposed district, it was the general rule in the less ventilated and more populous parts. The sanitary condition of the latter was found by experience to preclude depletory measures in this instance as decidedly as in the common typhoid fever, which is always more or less present in these lower regions. The fact serves to enforce the general necessity of observing the grand elementary proposition ruling the indications for cure,—that the disease of a healthy district, when invading an unhealthy one, will have its type so unfavourably modified by the unfavourable sanitary condition of the latter, as to invert even the therapeutic indications for the healthier locality, in order to combat with success under its transmuted form, a disease essentially the same. Looking to the treatment of fever generally, to a superficial observation nothing appears more crowded with contradictions; but where mutability of type is fairly weighed, as chiefly caused by the varying sanitary states of different localities, a master key as it were to the solution of the difficulty is obtained; the discrepancies are seen to be more apparent than real, and the various modes of treatment stand in their true light. The real indications for cure thus become legible, while the effects of measures which the hand of an empiric even may have possibly directed aright, admit of ready explanation.

I am informed by the House and Visiting Surgeons of the South Dispensary, that there were only two or three cases of the epidemic occurring in their lower district, bordering on the docks, (St. James's Street,) and two only in the higher district, (Park Road;) but they considered these to present well-marked characters of the epidemic.

Dr. Duncan's fever pamphlet shows that in three of the worst wards of the town, the proportion of fever cases to the whole population of these wards, St. Paul's, Exchange and Castle Street Wards, was one in thirty-seven. In the "Liverpool Health of Towns' Advocate," edited by Dr. Sutherland, and published by the Liverpool Health of Towns' Association Committee, it is stated that the North and South Dispensaries alone attended in the year 1841, five thousand seven hundred and seventy-nine fever cases, which gives one in thirty-eight of the whole population of Liverpool as the subject of fever. I have Dr. Sutherland's authority, as Senior Physician to the Dispensaries, for the assertion that the amount of fever cases for the epidemic year of 1844 in the old fever districts was uncommonly small. The bulk of the fever cases come under the attendance of the North Dispensary.

#### X.—Causes.—Medical Topography of the District.

—I do not flatter myself that under this head I shall be able to produce an amount of evidence, sufficient to demonstrate the undeniable agency of the various conditions of the soil, in satisfactory solution of our problem. To do this, or to have a chance of doing it, would require an extension and accuracy of data which I cannot obtain now; nor perhaps could it have

been got, had there been a special commission of enquiry on the very spot. But there are some points of interest, because of a practical bearing, which ought not to be passed over, simply because the amount of their effect cannot be accurately estimated or arranged into a demonstrative formula. Of these are the following facts.

The district of Old Swan, a place lying about two miles east south-east of Everton, and rather in a hollow, more protected by trees than Everton, and screened also by the latter from the first brush of the sea breeze—having a substratum of clay about two feet below the surface, well calculated therefore to retain the moisture, which had been superabundant. Here the earliest cases of the epidemic occurred, and here, too, the fever first declined, whilst it was spreading its baneful influence along the ridge of Everton and Edge Hill, including the lower district of Kirkdale and Bootle, which is washed by the estuary of the Mersey.

Everton: Here the chief power of the malaria was exerted, and it is probable that some hundreds of cases presented themselves as more or less attacked by the noxious agent. As we see, on glancing at the map, and especially at the old view of Liverpool, in 1760, the suburb of Yerton, as it was then written, was at that time a high ridge of land, running north and south, and covering the town of Liverpool considerably from the easterly winds, except from the south-east quarter, to which the town is exposed by the sinking down of the shoulder of the ridge on the south extremity into the open plain on which Toxteth Park stands, (a suburb south of the town,) and which stretches on towards the river at Runcorn, with but little exception. It will be seen, from what we have pointed out, that Everton must present its broad side to the mouth of the river, as the latter at its mouth runs nearly due north, at least, the shore of Bootle Bay, underneath Everton, tends to the north and north-west. The district must therefore be considerably exposed to the sea breeze blowing off the channel, and to any land and sea breezes blowing across the Peninsula of Wirrall, *i.e.*, from the mouth of the Dee, and from the distant range of Welsh mountains, one of which, for the information of strangers, we may add, can be readily recognized from the parts of Everton on a clear day.

Mr. Shaw, the overseer of Everton, told me that to his knowledge there were thirty cases he could point out within sixty yards of his house, which is near the little Post-office, and with the exception of the land on which St. George's Church stands, about half-a-mile off, is the highest part of Everton. As we have seen, Everton and its immediate vicinity presented the chief bulk of cases. The town of West Derby itself, lying more to the east, and neighbouring to Old Swan, had very few cases, I believe, at least as far as I have learnt. Everton has no bog soil, being geologically the cropping out of a ridge of the new red sandstone. I must call the attention of the Society to the existence of large bodies of stagnant water under Everton and Edgehill, retained from percolating by strata of clay, in the variegated sandstone. Also to an open drain, running down from the foot of Mill Lane, Everton, to Shaw Street, for two hundred yards, perhaps, quite open in its course. The new small houses, of late



erection at Everton, are not sufficiently drained, I am told.

In a report of the County Carlow Fever Hospital, which Dr. Shewbridge Connor kindly sent me, and which comprises the period from November 23rd, 1843, to November 21st, 1844, I find that there is recorded a large increase of fever in that district. Dr. Connor states, "In the last twelve months more patients have been admitted than in any two years since 1836." He says that "the typhus fever of the past year exhibited some symptoms very different from those of the disease in previous seasons; the most remarkable in this locality were, the dark and jaundiced appearances which the surface presented in consequence of congestion, or of greatly increased action in some of the biliary organs; hæmorrhages from various internal parts of the body."—"The mental faculties sometimes were not affected in proportion to the derangement of the nervous system." Other symptoms, of some correspondence to those of our epidemic here, are also given, but I have quoted sufficient to show this point already. The mortality was one in seventeen. It attacked an "unusual number of nursing and pregnant females." "Notwithstanding the severity of the symptoms in this epidemic, unless the patient suffered much from previous debility, a broken down constitution, or great local disorganization, the disease generally had a favourable termination." Dr. Connor adds, "The fever was of a most contagious nature."

This feature does not correspond with the evidence I have been able to gather on this question in our own fever, the conviction being general that it was not contagious; it is confessedly at all times a difficult problem to solve unequivocally. Perhaps the same epidemic in one district would show itself only sporadically, whilst in another it might spread more prominently by contagion, this latter character being due to such peculiar depressing causes acting on the health generally, as deficiency of food, clothing, uncleanly habits, ill-ventilated abodes, &c. And this condition of the inhabitants of Carlow, in the lower parts, is just what Dr. Connor vividly describes in his report, and to which he himself ascribes the virulence of the fever; and he very properly points out the imperative necessity of improved sanitary regulations, if fever is to be abated in a district. Happily now the attention of the country and of the government is at last turning with earnestness to this subject, so that economy of life, and of the public purse itself, will be certain to result from sanitary provisions carried out universally.

The wretched condition of the Irish poor, generally, will account for the severity of fever and other diseases always rife in that unhappy country, and for the superinduced contagiousness of their epidemic in the present instance; whereas in our suburban district it was the highest part topographically, and, in other respects, the better part of the town, where, until very lately, comparatively but few poor resided, being chiefly the residence of the wealthier classes, which was chiefly visited with the disease. How, in this case, could the origin of the epidemic be traced out, except it be deduced from some very general change in the circumstances of the district, seeing that the usual sources of severe fever were almost absent from the place itself where it chiefly broke out. Unless it be ascribed to local peculiarities of situation, favouring the meteorological

impressions, one is puzzled to divine the "*fons et origo mali*." It is needless to remind the reader, that as the spot generating malaria does not suffer so much from its influence as the bordering places to which the noxious miasma may be carried in currents by the wind, especially if such strike upon a higher land, as a hill side; so it is probable, as Dr. Dickinson suggests, that this mode may have operated to develop the fever at Everton, and around, viz., by the influence of the wind pretty constantly blowing in such a direction as would drive currents of noxious gases and mephitic vapours from the flat level of the town and river banks, this effect being also aided by the reducing power of the atmosphere.

Mr. Abraham, to whom I am indebted for tables of the weather, is of opinion that the direction of the wind would certainly strike upon Everton over the low quarters of the town and flat district along the river, and that he had no doubt as to this having a great influence in developing the epidemic. He states, "that for twenty years he had not known such a constantly prevailing wind from the south east quarter."

Some practitioners were inclined to attribute a great deal to the variations of temperature, but this is quite opposed by the results which Dr. Guy has lately arrived at for London. He found that the amount of sickness varied directly as the temperature, being a maximum in the hottest, and a minimum in the coldest month. Diseases of respiratory organs follow an inverse order, being most numerous in the coldest months. The hygrometric state of the air, which acts chiefly in generating the above affections of the colder months, cannot be said to have acted alone in this case. Season again, does not operate by precise rule in producing sickness, but differs "year by year." Dr. Guy's general and last proposition is, that "the amount of sickness tends to vary directly, and the amount of mortality inversely, as the temperature."\*

With regard to the recurrence of the sanitary shivering "or rather coldness," about the 11th or 14th day, as observed by Dr. Richard Hindle, (*Provincial Medical Journal*, Oct. 7, 1843,) I have not had an opportunity of verifying such in the cases which have been reported to me, although I think it very possible that a slight symptom of this nature may have escaped general observation.

The rare occurrence of any petechial eruption, though often carefully looked for, particularly in the fever-wards, does not encourage the idea that the typhoid forms are closely approximated to eruptive fevers.

From Dr. Cowan's "Retrospective Address," of 1844, the earliest date at which the epidemic appears to have set in, was about the autumn of 1843, "in Edinburgh and other large towns of Scotland," which was noticed by several eminent physicians there in the journals of that date. It was denominated the epidemic remittent; and in this respect appears to have been identical with our own. Dr. Cowan adds, "Since January of the present year, typhus has reigned epidemically in Paris. It was at its maximum of intensity in April, had a strong tendency to a remittent or intermittent form, and appeared to increase with a westerly, and to diminish with an easterly wind. Erysipelas has also prevailed during the same period. Dr. S. Forry's

\* *Provincial Medical and Surgical Journal*.



description of a malignant fever prevalent at Roudout, New York, in August and September, 1843, closely resembles that of the Scottish epidemic." (*Transactions of the Provincial Medical and Surgical Association*, New Series, vol. i., page 17.) Dr. Cowan also draws attention to an admirable description by Dr. Dielt, of the epidemic of typhus, which ravaged the Austrian capital during the years 1842 and 1843.

At the time of our own epidemic I had not read Dr. Cowan's address, and therefore whatever degree of correspondence there is between these notices of epidemics elsewhere, which he quotes, and the observations detailed here, will be received as valuable evidence of coincident observations derived from unbiased records. Dr. Dielt's remark, that a red tongue seemed the index of the most favourable condition, and that a pale tongue was associated with a painful abdomen, I have not seen verified in our experience.

Dr. Dielt noted the acute tuberculization of the lungs preceding or following the epidemic; but he does not state whether such disease yielded more readily to treatment than in ordinary, a fact which some believe, and already quoted in this paper. Both the fever and the tuberculation appear to have had their more ordinary symptoms merged, so as to mask the presence of each. He considers that the fever gave an activity to latent tubercle, and there is no doubt that rapid phthisis is not infrequently associated with fever, suddenly presenting the latter stages of this disease, when the stage of deposition of tubercle must often be traced back through the fever to an antecedent period.

Another point dwelt upon by Dr. Dielt is, "that those enfeebled by anxiety, or deficient food, were very seldom affected." This strikingly agrees with our observations here, and which was so general a truth, that I do not suppose there is a single practitioner who will not bear testimony to the fact. Before parting with Dr. Dielt, let me trespass on the reader by a final quotation from him, as referred to by Dr. Cowan, because it may find some corroboration in the statistics I have so very imperfectly tabulated. He states that "a decided exacerbation of the epidemic was observed every third week, but in proportion as the cases were severe was their number diminished, as if the quantity of the poison remaining the same, its diffusion was subject to periodical contraction and expansion."

A paper, recording some of the effects of the malarious poison, can have little to do with its origin, although from my own scanty observations, I feel inclined most to accuse vegetable decomposition. There is an opportunity about to occur in this district, which, if well observed, might perhaps tend to throw some additional light upon the development, march, and modifying agency of miasmata. The locality at present healthy, and having the types, &c., of its present diseases marked carefully, will be shortly obnoxious to the influence of marsh miasm, which may be accurately watched in its effects upon the sanitary constitution of the district, and the hilly character of the neighbouring ground will furnish currents and foci where its effects may be tracked out. This district will again become, some two or three years hence, changed in respect of originating malaria, and probably also become densely populated in the course of time by busy hives of beings dependent on the commercial

activity which large dock-space creates. The malarious area will be partly covered by the water of the docks, and partly by the surrounding warehouses and tenements.

In referring to the map, the reader will remark, on the Cheshire side of the River Mersey, a large body of water, called "Wallasey Pool," up which, for a considerable distance, the tidal waters of the river at present flow. New docks are in the course of construction upon this site, and as the tidal flow will be cut off by a sea-wall run across the mouth of the pool, a large space will not only be left divested of its periodic salt-water covering, but the depth of mud, accumulated for centuries, must be removed. It is genuine mud, not river silt, but a noxious deposit from half stagnant water, the amount of which, along with the subjacent rock and sand, has been estimated, at a rough guess, and from inspection of the plans and the works, which appear to be already completed, at from 1,500,000 to 2,000,000 cubic yards of excavation. Here may be presumed to be a fountain of intermittent fever, which will be unsealed for the first time in our neighbourhood, and then, if I may retain the figure, resealed, but not till it has told upon the excavators and surrounding population. If along with meteorological observations the medical practitioners of the districts of Birkenhead and Wallasey would note carefully the advance and progress of the endemic threatening their quarter, valuable data might be obtained bearing upon the etiology of ague, the exoteric periods of Dr. Laycock, and other important subjects of research.

In reference to malarious agency, I have at present a patient, a lady, who whilst on a visit to a fen district, caught ague in one of its most severe forms, insomuch that her life was apprehended to be in great danger for a long time. After removal, she gradually recovered; but though now enjoying ordinary health, yet at every catamenial period she gets a regularly formed quotidian fit, and then she has no more of it until the next period comes on. It is an interesting illustration of Dr. Laycock's esoteric periodicity, or internal series of chroral changes. The ague influence also impresses itself upon any catarrhal or other disorder.

The antagonism of typhus and ague is partly borne out by the topography of our epidemic, which the map will exhibit; the usual fever district, where the typhus always "has a home" in Liverpool, was not touched by the epidemic, which visited the best sanitary quarter of the township.

This febrile epidemic appeared amongst a class so usually exempt from fever, that it excited no little surprise and alarm in a grade of society which as far as this town is concerned, had been in the habit of congratulating themselves upon their own immunity from the pestilential visitant of the humbler walks of life. Though such privilege is not the case so remarkably in large and older cities, yet that it was enjoyed for many years by this class in Liverpool, the following quotation from the honoured pen of Dr. Currie will serve to prove:—"In Liverpool it has been supposed that this disease (typhus,) is seldom to be met with, and it is certainly true, that the upper classes of the inhabitants are not often subject to its ravages. It has never, in the last sixteen years, spread among the higher classes so as to occasion any general alarm."



(*Medical Reports*, p. 221, second edition, 1798.) Dr. Currie wrote his celebrated work in 1797, and if we deduct sixteen years from this date, we find that since 1781, when Liverpool had not a population probably of fifty thousand, (in 1790 it was nearly fifty-six thousand,) typhus fever was not common among the wealthier classes; so it has continued I believe ever since, until the present date of 1844, giving them exemption for a period of upwards of sixty years. No wonder then that considerable apprehension must have been felt by them at its return after more than half a century, supposing that previous to 1780 it had shewed itself among them, a fact nowhere stated.

From Dr. Currie's tables it appears, that the spring months were in 1795 the most remarkable for fever.

"It appears that the greatest number of patients admitted in any one year, (at the Dispensary,) was in 1795, amounting to 15,235, exceeding the average of the last ten years by 1880; and that the smallest number admitted for the last seven years was in 1796, falling short of that average by 354, and of the number admitted in 1795, by 2234. When it is considered that the difference between these two years falls chiefly in the winter and spring months; that the winter and spring of 1795 were the coldest, and those of 1796 the mildest, experienced in our climate for a long series of years; these striking facts will corroborate the statements of Dr. Heberden, in proving that the common opinion, which supposes a mild winter in our island to be unhealthy, and a severe winter to be favourable to health, is in both particulars the reverse of truth."

Of these months March had the most cases, (2003;) it was a month in which the weather became warmer, uncertain, and stormy, following three months of intense cold. Dr. Currie remarks, "Hence it appears, that though intense cold is directly unfavourable to the health of our poor, yet that it is in the transition from this intense cold to warmer weather, that their constitutions sustain the severest shock; a position that is still more fully supported by the decisive evidence that the month of March is the most unhealthy of the year, and next to it April, taking the average of seventeen years together."

In the seventeen years, recorded in the table, (given by Dr. Currie,) the average number of patients for each month of the whole is 1045; the average number in the month of March is 1204; in August 940. Dr. Currie then states, "that of 213,305 patients admitted in seventeen years at the Dispensary, 48,367 have laboured under typhus;—nearly a fourth of the whole, an immense proportion! It is curious to observe, that March takes the lead in respect to the prevalence of fever, as well as of diseases in general, and that August, as before, brings up the rear." The table shews March, 1795, to have "exceeded every other month in the production of diseases in general," and that it "exceeds in a still greater proportion in the production of fever." 546 cases occurred.

"Taking the seventeen years in the table, the average number of fevers annually is 2845, and the average number monthly is 237. The average number of March rises to 275."

But our epidemic differed from this, in a very remarkable point; it chiefly shewed itself during the closing months of the year, and declined rapidly in the spring months, so as to have spent itself by the hitherto formidable month of March.

In this place another question suggests itself:—Was this epidemic ever experienced before in this town, or was it, like the fashionable influenza, of modern importation? We cannot accurately determine this point at present, but I find that there is ground to believe that the type of this epidemic nervous fever did present itself in Dr. Currie's time and to his own observation, though not exhibiting close resemblance in all particulars. At page 44, chap. viii., of his works, is the description of a variety of fever, which, in his opinion, was neither typhus nor synochus, it did not seem to originate or to propagate itself by contagion, it "occurred chiefly in the winter season, in persons in the flower and vigor of life, possessed of considerable sensibility of mind, and in the habits of more than ordinary mental exertion." After a description of its mode of invasion, sometimes with indistinct catarrhal symptoms, followed by chills and reaction, he continues, by enumerating intense headache, præcordial oppression, &c., and pulse not remarkable as to frequency or strength, sleep not particularly disturbed, and progress like catarrhal fever; then garrulity, quickened apprehension, attention soon fatigued; heat rising to 170° or 108° Fahrenheit about the eighth day; delirium and incessant talking; senses acute, and skin very sensitive of chills; often calm, followed by occasional "indistinct conceptions," which rise and vanish in the mind, and the impression of sense are confounded with the ideas of the imagination; respiration afterwards hurried, pulse more frequent and feeble, followed by partial or general perspirations, not critical; death occurring about the twelfth or thirteenth day, in spite of judicious stimulating, and rapid putrefaction after, (this in winter.) Dr. Currie says, he saw this kind of fever treated by venesection and antimonials at first, followed up by bark and cordials, without success. "I have also seen it treated from the first on the same plan as typhus, but with an equally unfortunate issue;" and what is singular, his cold affusion plan was, in this kind, inefficacious, the only striking exception to a general rule. He contrasts the symptoms with those of true typhus, the acuteness and obtuseness of the senses in the two forms of fever prominently differing. I consider, therefore, that the apostle of cold affusion has seen the same essential features with our present, or rather late epidemic; for it is now happily a matter of history, and since his own acute judgment could not discover any specific line of treatment to recommend, I need not feel disappointed in not being able to record any very greatly improved practice or method of cure.

A pamphlet from the high authority of Professor Alison, of the Edinburgh University, entitled "Observations on the Epidemic Fever of 1843, in Scotland, and its Connection with the Destitute Condition of the Poor," argues from statistics, that the origin of the Scottish epidemic is traceable, as the title of the article implies, to the destitution of the poor. The following passage expresses the conviction made upon the respected author, by his statistical enquiry into the subject:—"I hold it, therefore, to be fully ascertained, that at this moment the unemployed and destitute poor, although they must be only a very *small minority*, probably hardly one in twenty of the population of Edinburgh and its neighbourhood, furnish a *large majority*, usually from three-fifths to two-thirds, of the fever patients; many of whom ascribe, I believe with perfect truth, their liability to the disease, to the



privations which they have endured. I am certain also, that a very large proportion of those in regular employment, or in better circumstances, who have taken the disease, have been obviously infected by intercourse with the destitute." (p. 9.) The Professor also quotes from a document signed by all the physicians in attendance at the Infirmary, written 26th August, 1843. "On whatever element of destitution its diffusion more particularly depends, the fever which now prevails is unquestionably connected very closely with circumstances peculiar to the destitute part of the population. In proof of this, the undersigned have simply to state, that while the disease abounds among the inmates of low lodging houses, and in districts inhabited by the poorest of the people, it is comparatively little known where the more comfortable of the labouring classes chiefly reside, and has not been seen by many of the medical practitioners of the city, whose practice lies chiefly among the better classes." (*Ibid.*)

The same kind of evidence is brought forward in reference to the city of Glasgow, and also to the towns of Greenock and Ayr. This origin, as far as regards these places, is striking, and viewed in such light, so far as Scotland is concerned, surely demands the earnest attention of the Government and Municipal authorities. But I have quoted these opinions, because they can, if correct, hardly be supposed to have any other than a general bearing on our question of origin here. If true of Scotland, the cause is more than likely to prove a general one; and if one cause can be made out as fully adequate to produce such a widely prevalent disorder, it would be, as a general proposition, unphilosophical to ascribe the epidemic to other additional causes. It certainly does not follow that a general cause should be an universal one, but it must be granted, that that which is found out to be general in some places, ought to be very largely taken into consideration, when studying the same question in other places, not vastly dissimilar in circumstances and geographical position.\* Admitting this reasoning, I feel bound, nevertheless, to remark, that the mass of facts before me, and I may add, the general conviction of my respected brother practitioners here, tend to a very different conclusion. The "destitute and unemployed," did not appear to be the originators or the focus of our epidemic—in fact, our experience, as I have elsewhere stated, ran in quite an opposite direction. It might be thought that the Scotch epidemic was not of the same kind with ours, yet any one who will take the trouble to compare the description of it by the able pen of Dr. Craigie, to which I shall briefly refer directly, will find that they were indubitably and essentially the same. They correspond in the fact that both attacked, to an unusual extent, the upper classes, but in this sea-port the fever did not begin amongst the destitute and unemployed as in Scotland, at least as far as present data carry us. There is no other course logically left to us, but to conclude either that, the Liverpool fever must be ascribed to another cause, or that double causes being possibly in operation, in one locality one cause presented itself primarily,

whilst in another locality a secondary causation was most prominent, and which might mask that cause which was primary elsewhere. To this mode of accounting for discrepancies in statistical observations, I feel reduced in my own less experienced judgment, by the evidence I have to deal with. Further researches may reconcile these discrepancies, and with this hope I must be content to leave the subject, the importance of whose bearing on the welfare of society, will attract for years to come, the attention of abler observers and reasoners than myself.

Every thing from the pen of Dr. Alison is entitled to the greatest respect, especially from those who, like myself, have had the advantages of his instruction, yet I confess I cannot reach all his conclusions from the perusal of his pamphlet. My want of better acquaintance with the sanitary and political conditions of the inhabitants of Edinburgh, and other Scotch towns, may be another reason for my hesitating to admit Dr. Alison's conclusions, and will, I hope, acquit me from the charge, at least, of presumption in judging. The general question of the cause and extent of the destitution of the poorer classes of Scotland, as a branch of the subject of political economy, is now, as it ought to be, taken up by the medical profession first, and thereby data are furnished, whereupon it is to be hoped the statesman will enact wiser and better laws for the relief of those poor who are "never to cease out of the land."\*

I have now briefly to refer to a "Notice of a Febrile Disorder, which has prevailed at Edinburgh, during the summer of 1843," by Dr. Craigie, published in the *Edinburgh Medical and Surgical Journal*, (vol. lx., p. 410.) This fever was considered by Dr. Craigie to be "different from *typhus* and *synochus*," in the character and progress of the symptoms, and in its tendency to relapse, in the absence of the red spots of typhus, in the less violent disorder of the brain, &c., and in diminished rate of mortality.

The pulse generally rose but little till the third or fourth day; skin at first hot and dry, then moist, without being critical; tongue covered with a whitish moist fur, becoming brownish and drier; delirium scarce; restless and sleepless for days; tenderness of epigastrium very general, or other abdominal region complained of; purple spots noted in some cases, but only in first attacks; pains throughout the body common, may be said to have presented a rheumatic character.

About the sixth day resolution of the symptoms spontaneously, attended with relapse in from three to five days, in more than sixty per cent. of the cases. In about

\* Geologically speaking, Edinburgh is built upon volcanic rock and old red sandstone, whilst Liverpool is lying upon the new red sandstone, which here never will admit of complete drainage, owing to the claybeds and the easterly dip of the strata.

\* I subjoin a paragraph from the pamphlet before quoted, which will inform those readers who are unacquainted with the Scotch system, of the very limited aid the poor of that part of the kingdom receive. "In the present system of the management of the poor, therefore, it is practically found in this, as in other parts of Scotland, that the greatest extent of suffering, the widest diffusion of disease, the heaviest burden on the charitable, result from the condition of that great class of the poor, for whom the existing laws make no provision whatever." p. 23. The destitution of the poor in Scotland may render them peculiarly obnoxious to the attacks of the fever, whether arising from malaria, changes of weather, or any other cause, by debilitating them so far, that they are unable to resist infection which more vigour would withstand. Such a general case might be considered a cause proved until the true elements of an universal cause were vigorously demonstrated.



four or five days more, convalescence established generally. Third relapse very rare ; about one per cent. ; more frequent in Glasgow than Edinburgh. Skin tinged yellow in a very few cases ; disease fatal in four out of the five jaundiced cases observed. *Post-mortem* appearances:—White textures of the body tinged yellow ; gall-bladder contained bile of a yellow colour ; ducts pervious ; liver unchanged. Pathological cause not cognizable, except it be non-elimination of bile from incapacity of the liver. This form of fever first appeared in March, and continued until September of the same year. The symptoms at first presented a catarrhal character ; but the non-restriction of the disease to the respiratory organs, and its duration being through a period so much longer, (epidemic catarrh only lasting about two months,) showed its different form.\* The complications were gastric, gastro-hepatic, gastro-enteric, and rheumatic. Black vomit was noticed only in two or three cases ; common vomiting not so frequent as in “yellow fever.” The mildness of attack distinguished it from West-Indian fever. A remittent form was clearly recognised in several cases ; if this character turn out to be uniform, “it might be regarded as a gastric fever with remittent type.” Seventeen out of three hundred and fifteen cases treated in Dr. Craigie’s own wards, proved fatal ; out of three hundred and sixty-four cases, eighteen were typhus.

*Cause.*—Possibly atmospheric changes, confined to certain localities, whether densely populated or otherwise : “the most densely inhabited in Edinburgh,” which, as Dr. Craigie justly observes, “yet must be allowed to be very favourable for the origin and propagation of a disease depending on atmospherical causes,” and he concludes the paragraph by saying, “on the other hand, a number of cases have been sent from Musselburgh, Tranent, Penicuik, Haddington, Dunbar, and similar situations, where the population is not dense, and where ventilation is excellent.” Contagion was not made out ; but it generally took families, first one member, then others. In Glasgow nurses suffered ; in Dundee and Glasgow there was a similar epidemic, with the same tendency to relapse ; yellowness of skin in some cases, and deaths frequent out of these.

*Treatment.*—The treatment was commenced by clearing out the bowels, and the expectant method, as diaphoretics, (mild salines,) with no great evidence of their utility ; toast water seemed as favourable to critical perspirations. In a few cases leeches to the temples were required ; wine and quinine were given, as indicated, either for debility or rheumatic pain. In the yellow cases, calomel with opium, rhubarb, aloes, or castor oil, were used.

In this succinct account I cannot help expressing my regret that the changes of the urine have not apparently had the attention which Dr. Schönlein bestowed on them at Berlin.

XI. *Causes: Meteorological Changes.*—It is important to determine, if possible, the precise circumstances which have given rise to the present epidemic. It is well known that there are certain conditions always acting which tend to the generation and spread of disease in Liverpool ; but as these conditions have not

\* Catarrh is frequent and epidemic in April and May, both in Leith and Edinburgh.

materially altered of late, we must look for the causes elsewhere, and with this view I applied to Mr. Abraham for the subjoined record of the meteorological state of the atmosphere, the mean results of which I will now detail:—

MONTHS.	Barometer.			Thermometer.			Hygrometer.		Wind.								Pluviometer		Diurnal state of the Weather at Nine, a.m.					
	Monthly Mean	Maximum during Month	Minimum during Month	Monthly Mean.	Maximum	Minimum	Mean of Dew Point	Difference of Wet and Dry Bulb	North	N. East	N. West	West	South	S. East	S. West	East	In. Pts.	Fall of Rain during Month	Fair	Rain	Cloudy	Stormy	Showery	Snow
January . . . . .	29 : 99.23	30 : 36	29 : 55	42 : 4	56	25	38 : 5	1 : 7	5	2	16	2	1	2	3	0	2 : 53	11	11	6	8	4	0	2
February . . . . .	29 : 60.10	30 : 11	28 : 60	38 : 9	48	27	34	2 : 1	3	6	7	3	2	2	5	1	3 : 45	11	11	7	6	3	0	2
March . . . . .	29 : 75.19	30 : 48	29 : 10	42 : 17	57	27	36 : 4	2 : 6	1	5	13	5	0	4	4	2	2 : 76	12	12	5	8	6	0	0
April . . . . .	30 : 09.22	30 : 47	29 : 30	50 : 24	61	36	41 : 8	3 : 9	6	2	12	3	0	0	1	0	1 : 26	19	19	6	5	0	0	0
May . . . . .	30 : 15.13	30 : 44	29 : 86	54 : 4	69	35	40 : 8	5 : 6	3	9	7	0	2	5	2	7	0 : 81	23	23	2	5	1	0	0
June . . . . .	29 : 89.29	30 : 18	29 : 58	59 : 17	75	42	48 : 7	4 : 6	4	1	13	1	1	2	2	1	3 : 10	16	16	6	7	0	0	0
July . . . . .	29 : 88	30 : 21	29 : 44	61 : 19	80	44	50 : 2	4 : 5	5	0	14	2	2	3	3	0	5 : 27	17	17	6	6	1	0	0
August . . . . .	29 : 76.23	30 : 29	29 : 28	58 : 15	74	45	49	4 : 5	3	0	18	1	2	2	3	1	3 : 55	10	10	5	8	2	0	0
September . . . . .	30 : 02	30 : 32	29 : 65	58 : 26	77	42	47 : 7	3 : 9	3	4	9	2	2	1	3	6	2 : 99	14	14	8	8	0	0	0
October . . . . .	29 : 62.7	30 : 30	28 : 82	49 : 10	61	32	46 : 4	3 : 6	2	2	9	3	3	6	5	1	2 : 99	15	15	7	6	3	0	0
November . . . . .	29 : 75.9	30 : 34	28 : 93	43 : 18	56	29	41 : 10	2 : 4	0	1	4	2	11	6	4	2	1 : 27	14	14	3	8	5	0	0
December . . . . .	30 : 01.3	30 : 49	29 : 40	32 : 17	41	20	28 : 7	1 : 9	0	3	0	0	4	20	2	2	0 : 12	25	25	2	3	1	0	0
Annual Mean	29 : 87.7	30 : 32.7	29 : 29.5	49 : 10	63	33 : 20	42	3 : 4	35	35	122	24	30	56	41	23	30 : 10	187	63	78	34	0	4	

METEOROLOGICAL TABLE FOR 1844.



Maximum of Atmospheric Pressure,	Mar. 30th,	30.48
Minimum	Feb. 26th,	28.60
Maximum of Dew-Point	July 24th,	60.2
Minimum	Dec. 8th,	18.
Maximum of Temperature	July 23rd,	80.
Minimum	Dec. 8th,	20.
Maximum Difference of Dry and Wet Bulb . . . . .	June 11th,	7.5
Minimum	Dec. 30th,	0.0

It will be observed that the barometric pressure has been unusually high and steady during the whole period, and that the temperature has been lower than usual at this time, although the extremes are not great. The atmosphere has also been highly charged with moisture, and the quantity of rain very small. The prevailing wind has been south and south-east for a longer period than has been known for many years, so that it appears not unlikely that the great conducting power of the atmosphere for heat may have produced that depressing influence, the results of which are so strongly marked in the present epidemic.

*Thermometrical Range.*—From November 26th, to December 2nd, the mean diurnal temperatures were, 37<sup>o</sup>.75, 39<sup>o</sup>.75, 41<sup>o</sup>.43, 37<sup>o</sup>.75, 36<sup>o</sup>.5, 35<sup>o</sup>.5. After this fall of six degrees in the last four days, fourteen cases occurred on the following day, and thirteen were admitted into the fever wards. From October 31st to November 6th, there was a fall of the mean diurnal temperature from 47<sup>o</sup>.5 to 41<sup>o</sup>.25; in seven days the thermometer fell six degrees, twelve cases followed. Again, from November 17th to November 18th, the mean temperature fell from 50<sup>o</sup>.25 to 44<sup>o</sup>.75, thirteen cases followed; and on another occasion, during the same month, when the mean of the thermometer fell five degrees in five days, six cases followed.

*Wind.*—The south-easterly direction of the wind prevailed chiefly throughout the months in question, and blew more persistently from that quarter, and for a longer time than Mr. Abraham had witnessed for twenty years previous. Mr. H. Higginson remarked that the cases under his observation changed for the better, or retrograded, even into relapse, according as the wind veered.

Some practitioners have accused the supposed varying electric states of the atmosphere. The general run of cases occurring on the side of a range of high land, affords some countenance to this opinion, but beyond this fact there does not appear evidence to warrant the supposition.

*XII. Epidemic Constitution and Prophylaxis.*—Under this head there is but little room for remark, according to the present state of our knowledge. It cannot be doubted, however, that the science of hygiene ought to be applied, especially in case of the epidemic constitution, to the enabling of those in ordinary health to resist the noxious influence. Much may be done towards invigorating the human constitution to wrestle with malarious influences, and the proper steps for attaining this end ought not to be overlooked by the accomplished practitioner, whose knowledge is as legitimately taxed for the prevention as for the cure of the prejudicial effects of malaria and other causes of disease. The regular evacuation of the

bowels must be attended to, not only in regard to this epidemic, but also, where epidemic catarrhs, (influenza,) cholera, dysentery, &c. &c., happen to be prevalent. Next to this, nutritious but easily digestible diet claims attention; and should any weakness of the digestive apparatus exist, such requires the suitable prescription of a course of alteratives, light vegetable and aromatic tonics, with aperients, as the case may demand; and lastly, the regularity of hours of rest and meals, concurrently with early hours of retiring and rising.

In order further to strengthen the system, the habit of cold morning-bathing, either in the shape of plunge-bath, shower-bath, or sponging over the surface with salt, vinegar, or spirit and water, or water without these ingredients, should be adopted. Before or after doing this, the body should be well dressed with the horse-hair belt or gloves, whereby sufficient glow may be produced to secure healthy reaction. If I may be so bold as to quote my own personal experience, I may add, that I have passed a dozen years in the profession, in residence and constant attendance in fever hospitals, through all the vicissitudes of studentship, in three or four metropolitan seats of study, and attendance in a densely populated district, where the cholera raged, and obnoxious to all the chances of private practice subsequently, without ever having caught any of those diseases which have more than decimated our ranks; and this, as far as human means go, I ascribe to the habit (cleanly—and therefore healthy,) of bathing or sponging through all seasons, so as to ensure that healthy state of the excretories of the skin, &c., whereupon alone dependance can be safely placed.

It is my pleasing duty, in committing these observations with all their imperfections to the eye of the medical public, to acknowledge most gratefully the gentlemanly and cordial manner in which assistance has been rendered me from various quarters, in addition to those private facts which I have quoted along with the names of the parties who furnished them. The physicians of the fever wards, Drs. Maerorie, Gouthwaite, and Dickinson, most kindly permitted me the use of their books. I have only referred to the cases of the two latter, simply because I thought I had obtained sufficient materials already for my object. I am aware, that to have taken and digested Dr. Maerorie's cases also, thereby getting the whole number, would have rendered this attempt more complete. I can only say, that having already devoted too much time from my own practice, &c., to the working up of this paper, I was compelled to stop the first moment I could do so at all consistently with the object I had in view. I may yet regret the "unaccomplished," but those who best know the labour of a statistical research, will be the first to excuse my pausing here. Indeed, it is only common justice to Dr. Dickinson to state, that I should not have got the length I have done, if it had not been for his great kindness in dividing the labour of drawing out tables from the records of each case. If the paper has any value, it is chiefly due to himself, and I could not be content without gratefully acknowledging many valuable hours which he has thus devoted to me.

To my friends Drs. Sutherland and Brett, I am also largely indebted for much valuable assistance. The Board of Guardians of the West-Derby Union have



kindly allowed me to refer to the books of their medical officers; and to Mr. Fell, the surgeon of the Workhouse, I am also under obligations. To Mr. Abraham I am indebted for a copy of his meteorological report for the period referred to.

and *Surgical Journal* I owe my thanks for his polite attention to, and revision of, my manuscript, so as to render it more fitted for publication, it having been placed in his hands in an imperfect state, owing to the occurrence of illness in my family.

Finally, to the Editor of the *Provincial Medical*

Liverpool, 4, Bedford Street, North, December, 1845.

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#### ERRATA.

Page 7, column 1; bottom line but one, for unobserved, read "unrecorded."

Page 7, column 2, line 10, for unnoticed read "unrecorded."

Page 7, column 2, line 30, for tympanitis, read "tympanites."

Page 8, column 1, line 12, for unnoticed, read "unrecorded."

Page 8, column 1, line 24, for unnoticed, read "not noted."

Page 8, column 1, line 42, for inordinate digestion, read "involuntary dejections."

Page 19, column 2, line 39, for tends, read "trends."

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[The foregoing pages are the substance of a Communication read before the Medical Society of Liverpool, at two of their Meetings in the Months of January and October.]







